



SOLD AT THE AGRICULTURAL LIBRARY AND  
"ESTATES GAZETTE" OFFICE,

200, Fleet Street (Temple Bar), London.

Repository for Books and Instruments on Farming, Gardening  
Building, Surveying, &c.

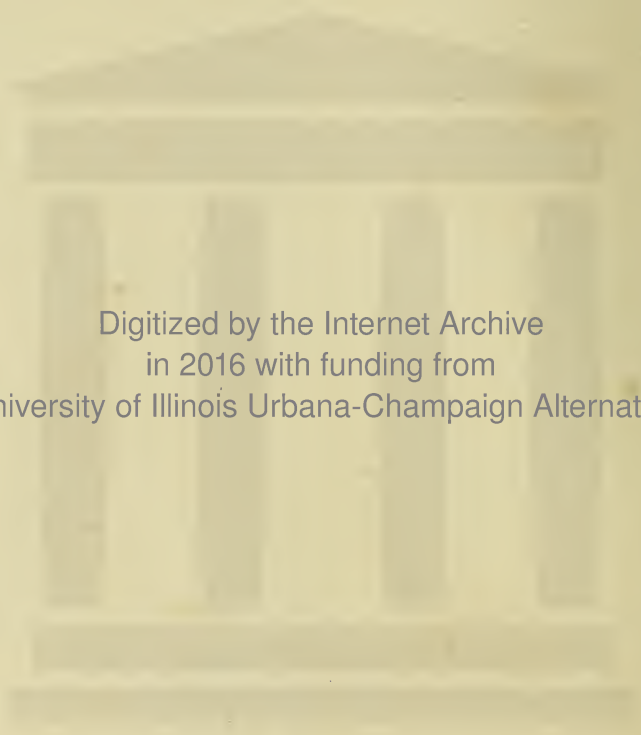
ORDNANCE and GEOLOGICAL MAPS, &c.

**THE UNIVERSITY  
OF ILLINOIS  
LIBRARY**

630  
M145c10







Digitized by the Internet Archive  
in 2016 with funding from  
University of Illinois Urbana-Champaign Alternates

LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





Vincent Brooks, Engraver

Yours Sincerely,  
D. G. J. Macdonald

# ESTATE MANAGEMENT.

(*New Edition of "Hints on Farming" in a separate Volume.*)

BY

DUNCAN GEORGE FORBES MACDONALD, C.E.,

F.G.S., F.R.G.S., M.R.S.L., M.H.S., F.A.S.L., P.M., J.P., &c.

Drainage Engineer and Surveyor of Improvements executed under the control of the Inclosure Commissioners for England and Wales; Engineer in Chief to the Inspector General of Highland Destitution, and Valuer of Roads, Bridges, and Public Works to the Scottish Board; Contractor for Agricultural Improvements, Farm Roads, Tramways and Railroads; Member of the Royal Agricultural Society of England; Member of the Highland Agricultural Society of Scotland; late of the Government Survey Staff of British Columbia, and of the International Boundary Line of North America; Author of "What the Farmers may do with the Land," "The Paris Exhibition," "Decimal Coinage," "British Columbia," and "Vancouver's Island,"  
&c. &c.

TENTH EDITION.

---

DEDICATED, WITH SPECIAL PERMISSION, TO

HIS GRACE THE DUKE AND EARL OF SUTHERLAND, K.G.

---

LONDON:

DAVID STEEL, SPRING GARDENS.

---

1868.

*All Rights Reserved.*

“ Without books, God is silent, justice dormant, natural science at a stand, philosophy lame, letters dumb, and all things involved in Cimmerian darkness.”

---

LONDON :

PRINTED BY WITHERBY & CO., MIDDLE ROW PLACE, HOLBORN.



630  
M 145e10

TO

HIS GRACE

THE DUKE AND EARL OF SUTHERLAND,

K.G., ETC., ETC.,

THE NOBLE-HEARTED, GENEROUS, AND ENLIGHTENED PATRON OF

AGRICULTURAL PURSUITS, MECHANICAL APPLIANCES,

AND SOCIAL REFORMS,

THIS WORK

IS, WITH HIS GRACE'S SPECIAL PERMISSION,

MOST RESPECTFULLY DEDICATED

BY

THE AUTHOR.

---

Palmarum qui meruit ferat.

---

1045575

SIMPSON'S

12 May 39

Ag. 620 7 ap 39 Mumford - ed 10



# ESTATE MANAGEMENT.

---

Patronized by

HER MAJESTY THE QUEEN.

HIS ROYAL HIGHNESS THE PRINCE OF WALES.

HIS IMPERIAL MAJESTY THE SULTAN; HIS IMPERIAL

MAJESTY THE EMPEROR OF RUSSIA; HIS IMPERIAL

MAJESTY THE EMPEROR OF THE FRENCH; HIS MAJESTY

THE KING OF PRUSSIA; HIS MAJESTY THE KING OF DENMARK;

HIS IMPERIAL MAJESTY THE EMPEROR OF AUSTRIA; HIS MAJESTY

THE KING OF THE BELGIANS; HIS MAJESTY THE KING OF ITALY; HIS

MAJESTY THE KING OF SWEDEN AND NORWAY; FIELD MARSHAL HIS

ROYAL HIGHNESS THE DUKE OF CAMBRIDGE, K.G.; HIS

HIGHNESS THE VÍCEROY OF EGYPT; HIS SERENE

HIGHNESS THE PRINCE OF TECK; THE PRESIDENT

OF THE UNITED STATES; HIS EXCELLENCY

M. SYLVAIN VAN DE WEYER.

His Grace the DUKE OF GRAFTON

His Grace the DUKE OF BEDFORD

His Grace the DUKE OF MARLBOROUGH

His Grace the DUKE OF RUTLAND

His Grace the DUKE OF BUCCLEUCH AND QUEENSBURY, K.G.

His Grace the DUKE OF ARGVLL, K.P.

His Grace the DUKE OF MANCHESTER

His Grace the DUKE OF NEWCASTLE

His Grace the DUKE OF NORTHUMBERLAND

His Grace the DUKE OF WELLINGTON, K.G.

His Grace the DUKE OF SUTHERLAND, K.G.

His Grace the DUKE OF CLEVELAND

The Most Noble the MARQUIS OF LANSDOWNE

The Most Noble the MARQUIS OF HEADFORT

The Most Noble the MARQUIS OF SALISBURY

The Most Noble the MARQUIS OF CAMDEN

The Most Noble the MARQUIS OF HASTINGS

The Most Noble the MARQUIS OF WESTMINSTER, K.G.

The Right Hon. the EARL OF SHREWSBURY AND TALBOT

The Right Hon. the EARL OF DERBY, K.G.

The Right Hon. the EARL OF DEVON

The Right Hon. the EARL OF MORAY

The Right Hon. the EARL OF HOME

The Right Hon. the EARL OF GALLOWAY

The Right Hon. the EARL OF ESSEX

The Right Hon. the EARL OF STAMFORD AND WARRINGTON

The Right Hon. the EARL OF SHAFTESBURY, K.G.

The Right Hon. the EARL OF BREADALBANE

The Right Hon. the EARL OF SCARBOROUGH

The Right Hon. the EARL OF ROSEBERRY, K.T.

The Right Hon. the EARL OF DARTMOUTH

The Right Hon. the EARL OF HARRINGTON

The Right Hon. the EARL OF HARDWICK, P.C.

The Right Hon. the EARL OF WICKLOW

The Right Hon. the EARL OF LONGFORD

The Right Hon. the EARL OF CASTLE-STUART

The Right Hon. the EARL CRAVEN

The Right Hon. the EARL MANVERS

The Right Hon. the EARL OF LONSDALE

The Right Hon. the EARL BATHURST

The Right Hon. the EARL OF MINTO

The Right Hon. the EARL OF BRADFORD

The Right Hon. the EARL SOMERS

The Right Hon. the EARL VANE

The Right Hon. the EARL LICHFIELD

The Right Hon. the EARL GROSVENOR

The Right Hon. the EARL OF DUDLEY

The Right Hon. LORD JAMES MURRAY

The Right Hon. LORD VISCOUNT PALMETSTON

The Right Hon. LORD VISCOUNT POWERSCOURT

The Right Hon. LORD VISCOUNT FALMOUTH

The Right Hon. LORD VISCOUNT EVERSLEY



The Right Hon. LORD VISCOUNT SIDMOUTH	SIR WILLIAM FORBES, Bart., D.L.
The Right Hon. LORD EDWARD HOWARD	SIR ROBERT N. C. HAMILTON, Bart., K.C.B.
The Right Hon. LORD OTHO FITZGERALD	SIR H. D. BROUGHTON, Bart., D.L.
The Right Hon. LORD SCARSDALE	SIR THOMAS DYER, Bart., D.L.
The Right Hon. LORD BISHOP OF OXFORD	SIR HEU. HAMILTON DALRYMPLE, Bart., D.L.
The Right Hon. LORD HASTINGS	SIR EDWARD BLACKETT, Bart., D.L.
The Right Hon. LORD BERNERS	SIR JAMES J. R. MACKENZIE, Bart., D.L.
The Right Hon. LORD BURGHEY	SIR JAMES FERGUSON, Bart., M.P.
The Right Hon. LADY WILLOUGHBY DE BROKE	SIR THOMAS HESKETH, Bart., M.P.
The Right Hon. LORD STANLEY, M.P.	SIR JOHN TRELAWNEY, Bart., M.P.
The Right Hon. LORD PROBY, M.P.	SIR GEORGE CALTHURST, Bart., D.L.
The Right Hon. LORD ASHLEY	SIR LAWRENCE PALK, Bart., M.P.
The Right Hon. LORD HILL-TREVOR, M.P.	SIR ROBERT AFFLECK, Bart., D.L.
The Right Hon. LORD POLTIMORE	SIR PERCY BURRELL, Bart., M.P.
The Right Hon. LORD DORCHESTER	SIR GEORGE WOMBWELL, Bart., D.L.
The Right Hon. LORD ROKEBY, K.C.B.	SIR EDWARD HOARE, Bart., D.L.
The Right Hon. LORD CROFTON	SIR H. W. DES VOEUX, Bart., D.L.
The Right Hon. LORD SOUTHAMPTON	SIR GEORGE N. BROKE-MIDDLETON, Bart., C.B.
The Right Hon. LORD DUFFERIN	SIR JOHN SIMEON, Bart., D.L.
The Right Hon. LORD HARRIS	SIR BRIDGES HENNIKER, Bart., D.L.
The Right Hon. LORD COLCHESTER	SIR CHARLES C. W. DOMVILLE, Bart., D.L.
The Right Hon. LORD DE TABLEY	SIR JOHN R. REID, Bart., M.P.
The Right Hon. LORD DIGBY	SIR WILLIAM RUSSELL, Bart., C.B., M.P.
The Right Hon. LORD WHARNCLIFFE	SIR GEORGE MACPHERSON GRANT, Bart., D.L.
The Right Hon. LORD SHERBORNE	SIR JAMES MATHESON, Bart., M.P.
The Right Hon. LORD POWIS	SIR DAVID BAXTER, Bart., D.L.
The Right Hon. LORD ROSSE, K.P.	SIR D. C. MARJORIBANKS, Bart., M.P.
The Right Hon. LORD RAVENSWORTH	SIR EDWARD B. BARKER, Bart., D.L.
The Right Hon. LORD SKELMERSDALE	SIR FITZROY KELLY (Lord Chief Baron)
The Right Hon. LORD SUDLEY	SIR MICHAEL WHITE, K.C.B.
The Right Hon. LORD WROTTESLEY	SIR WILLIAM ARMSTRONG, D.L.
The Right Hon. LORD DUNSANY	SIR EDWARD S. WALKER, D.L.
The Right Hon. LORD BROUGHAM	Admiral FERGUSON, of Pitfour, D.L.
The Right Hon. LORD BATEMAN	Admiral KELLY, of Salford, D.L.
The Right Hon. LORD CAREW	Admiral WILSON, of Windermere, D.L.
The Right Hon. LORD AVELAND	General MACDOWALL, of Garthland, D.L.
The Right Hon. LORD FITZHARDINGE, K.C.B.	Colonel F. S. GREVILLE, of Clonyn, M.P.
The Right Hon. LORD ATHLUMNEY, P.C.	Colonel E. L. PRYSE, of Peithyll, M.P.
The Right Hon. LORD BELLEW, P.C.	Colonel W. B. BARTTELOT, of Hilliers, M.P.
The Right Hon. LORD LYTTON	Colonel W. J. R. POWELL, of Nantees, M.P.
The Right Hon. BENJAMIN DISRAELI, M.P.	Colonel LLOYD-LINDSAY, of Lockinge, M.P.
The Right Hon. Sir J. S. PAKINGTON, Bart.	Colonel G. TOMLINE, of Orwell Park, M.P.
The Right Hon. Sir WILLIAM HUTT, K.C.B., M.P.	Colonel C. BUCHANAN, of Drumpillar, D.L.
The Right Hon. C. P. FORTESCUE, M.P.	Colonel F. BATHURST, of Clarendon Park, M.P.
The Hon. RICHARD CAVENDISH, D.L.	Colonel C. P. LESLIE, of Gaslough, M.P.
The Hon. J. C. LOWTHER, Lowther Castle, M.P.	Colonel WILLIAM HAIGH, of Dunse Castle, D.L.
The Hon. DONALD OGILVY, D.L.	Colonel BOWER, of Steeple Ashton, D.L.
The Hon. WILLIAM DUNIER, D.L.	Colonel F. CLINTON, of Ashley Clinton, D.L.
The Hon. ARTHUR DUNCOMBE, M.P.	Colonel H. W. BARTON, of Waterfoot, D.L.
The Hon. PERCY WINDHAM, D.L.	Colonel A. G. HYSLOP, of Lotur, D.L.
The Hon. STEPHEN SPRING RICE, D.L.	Colonel W. GREY, of Darcy-Lever Hall, M.P.
The Hon. G. R. VERNON, D.L.	Colonel D. CAMPBELL, of South Hall, D.L.
The LADY ROSS, of Balmagown.	Colonel T. ARTHUR, of Misterton Hall, D.L.
The LADY OGLE, of Withean Court.	Colonel ALCOCK-STAWELL, of Kilbrittain Castle, D.L., J.P.
SIR CHARLES H. COOTE, Bart., D.L.	Major GRYLLS, of Glynn, D.L., R.A.
SIR THOMAS E. BLAKE, Bart., D.L.	Major J. ALCOCK, of Wilton Castle, D.L.
SIR NORTON J. KNATCHBULL, Bart., D.L.	Major J. ST. LEDGER, of Park Hill, D.L.
SIR JOHN S. RICHARDSON, Bart., D.L.	

- Major H. R. HUGHES, of Kimmel Park, D.L.  
 Major FERGUSON, Home of Rassendean, D.L.  
 Major W. A. MUNN, of Throwley, D.L.  
 Major J. R. GRINSTON, of Grinston, D.L.  
 Major H. COURT, of Castlemans, D.L.  
 Major GREYLLN, of Glynn, R.A., D.L.  
 Major G. F. HANSE, of Crosby Park, D.L., J.P.  
 Captain E. R. RICE, of Dane Court, M.P.  
 Captain H. G. MOYSEY, of Bathsulton, D.L.  
 Captain J. E. W. ROLLA, of Hendre, D.L.  
 Captain FORSYTH GRANT, of Ecclesgreig, D.L.  
 Captain C. B. STEVENSON, of Hennor, D.L.  
 Captain E. N. GAUNT, of Kenitraugh, D.L.  
 Captain ST. JOHN COVENTRY, of Henbury, D.L.  
 Captain G. HOPWOOD, of Hopwood Hall, D.L.  
 Captain T. L. D. JONES PARRY, of Madryn, D.L.  
 Captain W. DEEDES, of Sandling Park, D.L.  
 Captain J. CLARKE, of Summer Hill, D.L.  
 Captain CECIL JANE, of King's Bromley, D.L.  
 Captain COOTE, of Ballyfin, D.L.  
 Captain H. W. NICOLLS, of Melton Park, D.L., J.P.  
 Captain BUXTON, of Broad Oak, D.L.  
 Captain J. RAMSAY, of Barra Castle, D.L., J.P.  
 Captain R. RIDGWAY, of Shepligh, D.L.  
 Mrs. PRINGLE DOUGLAS, The Haining.  
 E. MARJORIBANKS, of Greenlands, D.L.  
 ALEX. MATHESON, of Ardross, M.P., D.L.  
 The Hon. S. LAING, of Papdale, M.P., D.L.  
 W. S. LINDSAY, of Manor House, M.P., D.L.  
 W. P. ADAM, of Blair Adam, M.P., D.L.  
 J. HARDY, of Dunstall Hall, M.P., D.L.  
 C. W. PACKE, of Prestwold Hall, M.P., D.L.  
 C. MARTIN, of Leeds Castle, M.P., D.L.  
 H. F. VERNON, of Hanbury Hall, M.P., D.L.  
 G. H. WHALLEY, Plas Madoc, M.P., D.L.  
 WILLIAM MILLER, of Manderston, M.P., D.L.  
 F. M. WILLIAMS, of Goonvrea, M.P., D.L.  
 G. L. PHILLIPS, of Lawreny Park, M.P., D.L.  
 H. WILSON, of Stowlangtoft Hall, M.P., D.L.  
 T. S. BAYLEY, of Ayden Hall, M.P., D.L.  
 W. W. B. BEACH, of Oakley Hall, M.P., D.L.  
 W. H. HORNBY, of Poole Hall, M.P., D.L.  
 H. J. SHELTON, of Brailles, M.P., D.L.  
 W. WILSHERE, of The Frythe, M.P., D.L.  
 TITUS SALT, of Methley Park, M.P., D.L.  
 W. G. L. BLUCHER, of Heydon, M.P., D.L.  
 H. TAYLOR, Chipchase Castle, M.P., D.L.  
 R. BENYON, of Englefield, M.P., D.L.  
 M. WILSON, of Eshton Hall, M.P., D.L.  
 M. CHAMBERS, of Child's Place, Q.C., M.P.  
 W. DIGBY SEYMOUR, of Lawn House, Q.C., M.P.  
 C. W. MARTIN, of Leeds Castle, M.P., D.L.  
 EDWARD HENEAGE, of Hainton Hall, M.P., D.L.  
 DE STAFFORD O'BRIEN, of Blatherewycke Park, D.L., J.P.  
 GEORGE PERKINS, of Saham, D.L., J.P.  
 CHARLES DYSON, of The Grove, D.L., J.P.  
 MILES PONSONBY, of Hale Hall, D.L., J.P.  
 F. D. C. GIBSON, of Sandgate, D.L., J.P.  
 ALEX. MITCHELL INNER, of Ayton Castle, D.L.  
 EDWARD RICE, of Dane Court, D.L., J.P.  
 H. G. MURRAY-STEWART, of Broughton, D.L.  
 B. C. L. BEVAN, Banker, D.L., J.P.  
 M. BANKES, of Letterewe and Gruinard, D.L.  
 W. BAIRD, of Gartsherrie, D.L., J.P.  
 R. J. RAMSDEN, of Carlton Hall, D.L., J.P.  
 J. FOWLER, of Breamore, C.E., D.L., J.P.  
 CHARLES LAWSON, of Borthwick Hall (late Lord Provost of Edinburgh), D.L., J.P.  
 JOSHUA STORRS MOORE, of Holly Lodge.  
 ALDERMAN MECHE, of Tiptree Hall, D.L., J.P.  
 CHARLES G. GREY, Ballykiston, D.L., J.P.  
 ADOLPHUS MONBEST, of Garswood, D.L., J.P.  
 CHARLES CHALMERS, of Monkshill, D.L., J.P.  
 B. PLANTAGENET NOEL, of Moxhall, D.L., J.P.  
 J. W. G. WATT, of Newport House, D.L., J.P.  
 W. H. GRIMSTON, of High Hall, D.L., J.P.  
 AMBROSE L. P. DE LISLE, D.L., J.P.  
 J. N. HIBBERT, of Chalfont Park, D.L., J.P.  
 THOMAS MEYRICK, of Bush House, D.L., J.P.  
 E. HEATHCOTE, of Prun, D.L., J.P.  
 ROWLAND HUNT, of Kibworth Hall, D.L., J.P.  
 JOHN RAMSAY, of Barra, D.L., J.P.  
 J. A. BLENOWE, of Whaddon Hall, D.L., J.P.  
 W. C. GRANT, of Hillersdon House, D.L., J.P.  
 LEWIS LOYD, of Monk's Orchard, D.L., J.P.  
 W. C. YALE, of Plas-y-n-Yale, D.L., J.P.  
 H. LOCKWOOD, of Barcombe, D.L., J.P.  
 W. BIRCH, of Wretham Hall, D.L., J.P.  
 G. H. BASCOMB, of Chiselhurst Manor, D.L.  
 GEORGE PERKINS, of Saham, D.L., J.P.  
 R. FOSTER, of Lanwithan Castle, D.L., J.P.  
 A. J. R. BOUGHTON KNIGHT, of Downton Castle, D.L., J.P.  
 H. THOROLD, of Cowold Hall, D.L., J.P.  
 E. G. S. HORNBY, of Dalton Hall, D.L., J.P.  
 L. A. MAJENDIE, of Hedingham Castle, D.L.  
 W. SELBY LOWNDES, of Waddon Hall, D.L.  
 W. C. GRANT, of Hillersdon, D.L., J.P.  
 V. CARY-ELMES, of Billing Hall, D.L., J.P.  
 W. CORBETT YALE, of Plasyn Vale, D.L., J.P.  
 W. H. GRANTON, of High Hall, D.L., J.P.  
 T. FAIRFAX, of Newton Kyme, D.L., J.P.  
 J. HAMILTON, of Tyne Court, D.L., J.P.  
 T. LACHMORE, of Townhope Court, D.L., J.P.  
 A. G. PULLER, of Youngsbury, D.L., J.P.  
 Mrs. NORCLIFF, of Langton Hall, Malton  
 Mrs. THORNTON, of Moggerhanger  
 R. HUTTON, of Putney Park, D.L., J.P.  
 Mrs. FREDERICK WEST, of Newlands  
 T. CHAMBERLAYNE, of Cranbury Park, D.L.  
 C. P. ROUND, of Birch Hall, M.P., D.L.  
 J. COOKSON, of Neasham Hall, D.L., J.P.  
 G. A. BOYD, of Middleton Park, D.L., J.P.  
 G. H. HUGHES, of Middleton Hall, D.L., J.P.  
 C. S. HARDY, of Chilham Castle, D.L., J.P.

W. JONES LOYD, of Langley Bury, D.L., J.P.  
 R. H. NORRYS, of Davyhulme Hall, D.L., J.P.  
 ROBERT MILLER, of Wineby Hall, D.L., J.P.  
 E. S. CHANDOS-POLE, of Radborne, D.L., J.P.  
 W. O. HAMMOND, St. Alban's Court, D.L., J.P.  
 A. E. MANLEY, of Manley Hall, D.L., J.P.  
 ELIAS CHADWICK, Pudleston Court, D.L., J.P.  
 J. N. HIBBERT, of Chalfont Park, D.L., J.P.  
 EUSTACE HEATHCOTE, of Bramshaw Park, D.L.  
 J.P.

R. B. BERENS, of Revington, D.L., J.P.  
 W. H. BLAAUN, of Beechland, D.L., J.P.  
 E. ABADAM, of Middleton Hall, D.L., J.P.  
 W. R. BAKER, of Bayfordbury, D.L., J.P.  
 E. D. WOOD, of Newbold Revel, D.L., J.P.  
 W. D. T. DUESBERY, of Sealby, D.L., J.P.  
 THOMAS HUSTLER, of Acklam Hall, D.L., J.P.  
 W. DALZIEL MACKENZIE, of Gillotts, D.L., J.P.  
 J. B. BERESFORD, of Ashbrook, D.L., J.P.  
 JOHN GRANT, of Springfield, D.L., J.P.  
 D. R. DALE, of Shipton Hall, D.L., J.P.  
 C. D. HUDSON, of Cheswardine Hall, D.L., J.P.  
 JOHN WALKER, of Maryfield, D.L., J.P.  
 The Rev. G. H. DAVENPORT, of Foxley, J.P.

The Rev. G. E. LUSFORD, of Wigham, J.P.  
 The Rev. R. KNIGHT, of Tythegston Court, J.P.  
 The Rev. JOHN N. MICKLETHWAITE, of Faversham Hall, J.P.  
 The Rev. THOMAS STEVENS, of Bradfield, J.P.  
 The Rev. JOHN PRIOR, of Kinklington, J.P.  
 The Rev. JOHN JAMESON, of Windfield, J.P.  
 The Rev. T. R. ROUNDELL, of Gladstone, J.P.  
 The Rev. SAMUEL BRADSHAW, of Batford Hall, J.P.  
 J. SCOTT, Esq., Factor for Colonel Buchanan, of Drumpellier  
 W. OGILVIE, Esq., Chamberlain to His Grace the Duke of Buccleuch and Queensbury  
 CHRISTR. WILLIAMSON, Esq., Agent to the Right Hon. the Lord Willoughby d'Eresby  
 T. T. MOUSLEY, Esq., Agent for the Right Hon. the Earl Cawdor  
 R. GILLART, Esq., Agent for the Right Hon. the Earl Vane  
 J. SPENCER, Esq., Agent for the Most Noble the Marquis of Lansdowne  
 R. A. KINGLAKE, of Weston-super-Mare, J.P.  
 &c., &c., &c.

## CLUBS.

ARMY AND NAVY  
 ATHENÆUM  
 BOODLE'S  
 BROOK'S  
 CARLTON  
 CITY  
 CIVIL SERVICE

CONSERVATIVE  
 GUARDS  
 JUNIOR CARLTON  
 JUNIOR UNITED SERVICE  
 ORIENTAL  
 OXFORD AND CAMBRIDGE  
 REFORM

TRAVELLERS  
 UNION  
 UNITED SERVICE  
 UNITED UNIVERSITY  
 VOLUNTEER SERVICE  
 WHITE'S  
 WINDHAM

*"ESTATE MANAGEMENT," free to any Address, a Guinea and a Half.*

*"HINTS ON FARMING," free to any Address, One Guinea.*

MAY BE HAD OF THE AUTHOR, 4, SPRING GARDENS, LONDON, AND RESPECTABLE BOOKSELLERS.



## PREFACE.

---

THE previous Editions of "Hints on Farming and Estate Management" having been disposed of, and the demand continuing unabated, a Tenth, carefully revised and containing many additional suggestions, is here presented to the public, and which I have the honour of dedicating, with special permission, to His Grace the Duke and Earl of Sutherland.

To the care I have bestowed on condensing my opinions, and on giving to my book a thoroughly practical character, may probably be ascribed the very great favour with which it has been received by the landed interest, and agricultural community generally.

In treating of these subjects, it is, perhaps, difficult to draw a line of demarcation between that which is merely of importance to the Landlord, and that which may be exclusively addressed to the Tenant Farmer.

Whilst I have hitherto treated the two subjects as a whole, I now handle them separately, so that those who care for "Estate Management" only may purchase that volume, and those who are interested in "Farming" and "Estate Management" may buy both.

I am happy to learn that the previous Editions of this work have met with very flattering marks of approbation from various Sovereigns, many of the Nobility, Landowners, Agents, Farmers, and others interested in rural matters.

Believing that there are still some persons who may find instruction in its pages, I send this volume forth in the hope that the public may kindly overlook its defects and imperfections.

D. G. F. M.

LONDON, 1868.

# INDEX.

---

- Absenteeism, the evils of, 368
- Absurd excuses of farmers, 660
- Accounts should be regularly audited, 13
- Accounts, settlement of, 565
- Acre, how to measure an, 259
- Advantage of a knowledge of seasons, 296
- Advantage of landlords having a knowledge of farming, 263
- Advantage of landlords' example to the tenantry, 264
- Agent, duties of head, 19
- Agent, life of, not ignoble dependence and seclusion from enjoyments, 722
- Agent, the accomplished, 4
- Agent, office of chief, 5
- Agent, the smiles or frowns of the, 353
- Agent should be resident, 10
- Agent, the upright, 500
- Agent, what he should be, 9
- Agent-in-chief, qualification of, 6
- Agents, salary of, 7
- Agents, special training of, 8
- Agents, who make the best, 15
- Agents, ignorant, ruinous to estates, 17
- Agents, pen and ink, 20
- Agents, disqualification of, 21
- Agents, what they should ask, 74
- Agents, sale of manures by, highly improper, 354
- Agents should provide innocent entertainment for the people, 120
- Agents should know the value of land, 205
- Agents of Highland estates, 370
- Agents of extensive estates, 392
- Agents and public associations, 393
- Agents, tenants, and freemasonry, 397
- Agents and landed proprietors, 567
- Agents and local industry, 402
- Agents, resident and nonresident, 568
- Agents and the labouring poor, 404
- Agents and the gang system, 452
- Agents and the commissariat of the people, 413
- Agents should adopt piece-work in labour, 448
- Agents should be careful of small things, 499
- Agents should limit expenditure, 500
- Agents should examine the soil and sub-soil, 673
- Agents should be punctual, 502
- Agents should study the philosophy of little things, 459
- Agents, politeness in, of consequence, 503
- Agents should have all works and improvements executed under tender, 460
- Agents should be always civil, 505
- Agents should be early risers, 515
- Agents making business visits, 517
- Agents should be men of talent and integrity, 573
- Agents, who make the best, 574
- Agents should discourage extravagant expenditure, 457
- Agreements, when verbal, are loopholes to artifice, 465
- Agreements, instance of the folly of repudiating just, 463
- Agricultural fixtures, 202
- Agricultural chemistry, 211
- Agricultural produce, analysis of, 213
- Agricultural education, Morton on, 715
- Agricultural statistics and farmers, 522
- Agricultural statistics of Ireland, 526
- Agricultural schools, necessity for, 712
- Agricultural knowledge and landowners, 648
- Agricultural pursuits elevates man, 648
- Agricultural societies, 396
- Agriculture, the business of, 575
- Agriculture must progress with other interests, 572
- Agriculture, a great defect in, 216
- Agriculture and the late Prince Consort, 265
- Agriculture the basis of prosperity, 301
- Agriculturists, education of, 717
- Alder, mode of growing it, 260
- All have trials, difficulties, and hardships, 723
- Allotment system and the Duke and Duchess of Sutherland, 138

- Alluvial soils, 210  
 Amusing letter of a Highland shepherd, 707  
 Angling, statement of river, 643  
 Animal and vegetable food, 646  
 Animals, age of, 427  
 Arrears, tenants should not be allowed to fall into, 529  
 Assessment table for the counties of England, 176  
 Assessment table, expositive remarks on, 177  
 Assessment table for the counties of Scotland, 181  
 Ash-pits, 92  
 Autumn entry into farms, 54  
  
 Bad advisers often make bad landlords, 76  
 Bad tenants, 373  
 Bailiffs and landowners, 569  
 Bailiff's position, 564  
 Banks, the establishment of, 398  
 Banks and flood-gates, construction of, 545  
 Bark of trees, deductions for, 262  
 Bark, annual value of, 255  
 Barking of trees, 261  
 Beer between employers and employed, 566  
 Beer and spirit licenses, caution in granting, 478  
 Bees will pay a cottager's rent, 151  
 Bills of exchange, their utility, 399  
 Birds, cause of the small birds pleaded, 628  
 Birds, laws of nature, 627  
 Book-keeping, 13  
 Bricklaying, thickness of walls, 391  
 Bread shockingly adulterated, 494  
 Broom of considerable value, 259  
 Building of brick walls, 391  
 Building fixtures, law in regard to, 202  
 Buildings, farm, 191  
 Building cottages, the Duke of Bedford on, 110  
 Bullet-spray, cattle poisoned by, 279  
 Burdened estates should be sold in sections, 135  
 Buying and selling cattle, 280  
  
 Capital and land, 27  
 Capital and farming, 59  
 Capital, farming on too little, a great evil, 75  
 Capital invested in farming, return for, 166  
 Capital, interest made of farmer's, 167  
 Capitalists and the purchase of estates, 227  
  
 Cash payments, advantages of, 466  
 Cattle disease, one of the causes of, 269  
 Cattle, buying and selling of, 280  
 Changes should not be made hastily, 302  
 Characteristics of the Duke of Sutherland, 485  
 Charcoal, making of, 262  
 Civility in agents, 504  
 Clubs for the working classes, 123  
 Commercial fluctuations, 165  
 Compensation to out-going tenants, 204  
 Compulsory valuation, 57  
 Contracts should invariably be in writing, instance of the necessity of, 463  
 Conclusion referring to primogeniture, 706  
 Condition of the poor labourer, 98  
 Construction of farm buildings, 191  
 Contract work preferable to day work, 448  
 Contract, all estate improvement should be executed by, 461  
 Conveyancing practice, 704  
 Coppices, management of, 238  
 Corn acreage in different counties, 171  
 "Corn banks," the Hon. S. Laing, M.P., on, 490  
 Corn and money rents, 163  
 Corn rents, Mr. Mechi on, 164  
 Cottage building and landlords, 112  
 Cottage farming, 142  
 Cottage gardening, 145  
 Cottage, the lone, 154  
 Cottage improvement, progress of, 407  
 Cottages, plans of, 86  
 Cottagers, what they should grow, 146  
 Credit in the matter of rent, 529  
 Credit system, evil results of, 473  
 Croft system and the Duke and Duchess of Sutherland, 138  
 Crofters in the Highlands, 371  
 Crops, rotation of, 77  
  
 Daily expenditure, results of, 471  
 Debts should be speedily paid, 472  
 Derby day, thorough-bred horses, 431  
 Deer parks of England, 273  
 Deer stalking, the Queen and the late Prince Consort, 614  
 Deer stalking, the Queen's account of, 623  
 Disraeli, the Right Hon. B., on cottage accommodation, 105  
 Division of estates for sale, 227  
 Division of property, the Hon. S. Laing, M.P., on, 697  
 Division of land in England, 358  
 Dogs, number of, necessary for certain stocks of sheep, 650  
 Dogs are truly noble animals, 651  
 Dogs, number and expenses of, 653

- Drainage, importance of, 671
- Drainage of strong land a subject of great importance, 655
- Drainage of towns, 351
- Drainage question on entailed estates, 656
- Drainage of sea-side towns, 352
- Drainage largely increases the value of land, 668
- Drainage, useful table in, 669
- Drainage, expense of per acre, 570
- Drainage effects the temperature of the soil, 671
- Drains, distance apart and number of rods per acre, 670
- Drains, cost of construction, 670
- Ducal house of Sutherland and the tenants, 141
- Duration of leases, 26
- Duties of head agent, 19
- Dwellinghouse for the farmer, 191
- Earl Fitzwilliam and his tenants, 366
- Earl Fitzwilliam as a master of hounds, 607
- Earl Fitzwilliam a true sportsman, 608
- Early marriages, 456
- Earth as a disinfectant, 94
- Education of farmers in Scotland, 718
- Eland, Lord Hill's, 277
- Embankments, improvement of estates by, 544
- Embankments, angles of slopes in cuttings or, 550
- Embankments, artificial, 555
- Embankments, construction of, 549
- Employment and labour, 102
- Enclosures, size of, 188
- Enclosing land, quicksets required for any extent, 270
- Encouragement to good tenants, 28
- England, a beautiful model of prosperity, 538
- English and French agriculture, 155
- Entail, law with reference to, 691
- Entailed estates, drainage question, 656
- Entailed estates, improvements on, 681
- Entailed lands may be sold, 638
- Entails, Bacon and Adam Smith on, 695
- Entry to farms, 54
- Essence of good government, 303
- Estate agents' charges, 659
- Estates should be carefully surveyed, 11
- Estates advantageously parcelled out, 135
- Estates, great and small holdings on, 184
- Estates, value of, 220
- Estates, large, sell better divided, 227
- Estates, jockeyship in the management of, 292
- Estates, choosing of, 297
- Estates, observations on choosing one, 298
- Estates for sale, particulars of, 305
- Estates for sale, contents and rental of, 314
- Estates, registry of title to, 332
- Estates and public-houses, 474
- Estates, causes of the ruin of many, 498
- Evil results of the credit system, 473
- Evil results of low prices, 300
- Examination of soil and sub-soil, 673
- Example set by the Queen, 411
- Exhortation of the dying Scotch laird, 237
- Expediency of raising rents, 364
- Expediency of reducing rents, 365
- Expenditure, agents should limit, 500
- Equipoised interests, 61
- Fallow areas in different countries, 172
- Farm buildings, 191
- Farm buildings, landlord and tenant, 378
- Farm railways, 343
- Farm leases, 33
- Farm lease, a form of, 40
- Farm, letting conditions, 315
- Farm houses, size should be suitable to the farm, 192
- Farm offices, situation of, 191
- Farm, stock necessary for a, 563
- Farmer, qualifications of a, 363
- Farmer, how to know a good or bad, 389
- Farmer, the intelligent, looks upon agriculture as an art, 647
- Farmers, important duties of, 395
- Farmers, complaints among, 661
- Farming and capital, 59
- Farming in Ireland, 73
- Farming on too little capital a great evil, 75
- Farming in East Lothian, 157
- Farming, comparative excellence of, 133
- Farms to let, how to deal with them, 362
- Farms, entry to, in Scotland, 54
- Farms, entry to, in England, 55
- Farms, free-entering system, 56
- Farms, small, tendency to abolish, 126
- Farms, small, and the Duke and Duchess of Sutherland,
- Farms, large, tendency to possess, 127
- Farms, large and small, 129
- Farms, small, advantages of, 132
- Farms, laying-out of, 185
- Farms, choice of, 189
- Farms, cultivation of, 201
- Farms, free competition in taking, 361
- Farms, proper method of letting, 362
- Farms, tenants should be allowed to re-let, 376
- Farmstead accommodation, 191



- Fascination of hill sports, 642  
 Felling of timber, 242  
 Fences, importance of good, 266  
 Fences, the Hon. S. Laing, M.P., on, 267  
 Fields, best shape of, 186  
 Fir, the Scotch, 252  
 Fishing, rod-fishing, and rents, 641  
 Fishings, statement of river, 643  
 Fitzwilliam, Earl, and his tenants, 366  
 Fixtures, agricultural, 202  
 Fixtures, law respecting farm, 377  
 Fitzwilliam, Earl, and his poorer neighbours, 608  
 Flax, the growth of, 69  
 Flax exhausts the soil, 70  
 Flax-growing in Ireland, 68  
 Flocks in olden times, 285  
 Floodgates, construction of, 545  
 Flour, alum in, pernicious to health, 495  
 Folly of repudiating just agreements, 463  
 Food, animal and vegetable, 646  
 Food, adulterated and poisoned, 493  
 Foxes, hares, and rabbits, 604  
 Fox-hunting, advantages to the farmer, 603  
 Fox-hunting and the Prince of Wales, 606  
 Freemasonry, agents' and tenants', 397  
 French and English agriculture, 155  
 Fruit and fruit-trees, 148  
 Fruit, the most nutritious sorts of, 147  
 Furrow drains, 670
- Game, preservation of, 576  
 Game, the Prince of Wales allows his tenants to kill hares, 577  
 Game, dogs very destructive to, 649  
 Game laws, 580  
 Game, legal season for killing, 638  
 Game preservers destroy game, 581  
 Game in England and Ireland, 639  
 Game, predatory animals fulfil a purpose, 582  
 Game, the Duke of Buccleuch on, 584  
 Game laws in Scotland, 585  
 Game laws, Lord Elcho on, 586  
 Game preserving and farming, 587  
 Game prosecutions, Lord Elcho on, 589  
 Game, damage by, 590  
 Game, legal opinions as to hares and rabbits, 591  
 Game laws and rabbits, 592  
 Game, pied pheasants and white rabbits desirable in preserves, 640  
 Game, we hope to see it preserved, 594  
 Game, without protection, would be exterminated, 598  
 Game and rabbits, important decision, 599  
 Game, protection of, in France, 601
- Game, the poacher an actual criminal, 602  
 Gamekeepers often ruin deserving tenants, 579  
 Gang system and agents, 452  
 Gang system, evils of the, 455  
 General stores on estates, 484  
 Gradation of holdings the perfection of an estate, 137  
 Grain rents, 162  
 Grazing leases, 51  
 Groceries and adulteration in country shops, 496  
 Grass lands, form of a lease for, 51  
 Grass, tussac, growth of in the Lews, 539  
 Grouse, cause of the scarcity of, 620  
 Grouse disease, 625  
 Grouse disease periodical in its visit, 621  
 Grubs and rooks, Captain Mackenzie, of Findon, on, 633  
 Guano trade, position of, 355  
 Guano trade, regulations in, 357
- Hares and the Earl of Kellie's tenants, 596  
 Healthy districts, longevity of life, 196  
 Hedges ought to be close and compact, 270  
 Hedges, table showing the number of thorns or quickset required to enclose any quantity of land, 270  
 Hedge-growing, a word on, 271  
 Hedges, forming of, 272  
 Highland estates, agents of, 370  
 Highlands, the people of, 371  
 Highlands and the Highlanders, 622  
 Highlands, the Queen and the, 372  
 Highland shepherd, amusing letter of a, 707  
 Home and the farmer, 153  
 Homestead and dwelling-house, 191  
 Homestead and dwelling-house, cost of, 192  
 Homestead machinery, 198  
 Horse labour, 417  
 Horse, qualities of, 429  
 Horse, weekly cost of keeping, 447  
 Horses, breeds of, 428  
 Horses, thoroughbreds of 1867, 434  
 Horses, the chief of useful animals, 436  
 Horses, profit of breeding superior, 437  
 Horses, thoroughbreds, money value of, 439  
 Horses, shoeing of, 442  
 Horses, horrible treatment of, 443  
 Horse-buying and horse-copers, 445  
 Horse-dealing, jockeyism in, 446  
 Horse-show at Islington, 440  
 House accommodation for labourers, 81

- Houses, sites of, 193  
 Houses, aspect of, 194  
 Houses, cleanliness external and internal of, 195
- Ignorant agents ruinous to estates, 17  
 Implements and machinery, 422  
 Importance of memoranda, 12  
 Importance of laying out fields properly, 187  
 Importance of small savings, 467  
 Improved position of the labourer, 408  
 Improvement of waste land in Scotland, 662  
 Improvement of waste land in Caithness—details of expenditure and revenue, 664  
 Improvements between proprietors and tenants, 667  
 Improvements may be bought too high, 501  
 Incoming and outgoing tenants, 58  
 Increase of rent, 360  
 Insurance policies too often mere waste paper, 200  
 Ireland and "tenant-right," 22  
 Ireland and the flax question, 68  
 Ireland, farming in, 73  
 Ireland's great want, 160  
 Irish and Scotch tenants, 159  
 Irish agricultural statistics, 528  
 Inns on estates, 482  
 Insolvent tenants, 530  
 Intrinsic value of land, 359  
 Irrigation, 557
- Kind words to the tenants, 405  
 Knowledge of farming indispensable to an agent to an important estate, 5  
 Knowledge of gardening of consequence, 152
- Labour and employment, 102  
 Labour, economy of, 419  
 Labour, educated, Lord Palmerston on, 709  
 Labour, navy, 416  
 Labourer, proposal to give him shares of profits without making him a partner, 449  
 Labourer, improved position of, 408  
 Labourer and employer, 476  
 Labourer, advice to, 477  
 Labourers, house accommodation for, 81  
 Labourers' cottages, construction of, 84  
 Labourers cottages, plans of, 86
- Labourers, the Earl of Leicester and his, 111  
 Labourers, transfer of, 536  
 Laing, the Hon. S. and the labouring classes, 109  
 Lambs a shilling each, 282  
 Land, meaning of the word, 222  
 Land credit companies, 678  
 Land, conveyance of, 223  
 Land, valuable, laid waste, 553  
 Land, value of, depends on its produce, 299  
 Land and the poor, 676  
 Land Act, Lord Westbury's, 330  
 Land rendered worse than useless, 552  
 Land on the banks of rivers, 544  
 Land, method of gaining from rivers, 556  
 Land Act, benefits of Lord Westbury's, 338  
 Land laws of England—law and custom, 699  
 Land, division of, in England, 358  
 Land, division of, in France, 131  
 Land, free trade in, 687  
 Land, intrinsic value of, 359  
 Land system, Professor Fawcett on, 682  
 Land statistics, 169  
 Land and plants, all soils not alike suitable, 248  
 Land and capital, 27  
 Landed property, mode of registering, 334  
 Landed property, persons authorized to apply for registration of title to, 333  
 Landed property and railways, 341  
 Landed property in England, 226  
 Landed property, valuing of, 219  
 Landlord, tenant and farm buildings, 378  
 Landlords, examples of liberal, 367  
 Landlords example to the tenantry, 264  
 Landlords control tenants' property, 36  
 Landlords and cottage building, 112  
 Landowners, many opposed to early marriages, 456  
 Law of landlord and tenant, 381  
 Lease, articles, conditions, and regulations of a Scotch, 315  
 Lease, form of a farm lease which might be altered to suit most properties, 40  
 Lease, form of a lease for grass lands in a mountain district, 51  
 Leases which are for too long a period objectionable, 26  
 Leases give to tenants an independence of feeling which is very desirable, 33  
 Leases, Lord Shreswbury opposed to, 34  
 Leases on one side, 35  
 Leases, covenants of, 39  
 Leaves, practical uses of, 256



- Leaves a valuable manure, 257  
 Level, table showing the difference, in inches, between the true and apparent, 548  
 Lewes home farm, 209  
 Life-tenants, laws affecting, 720  
 Life-tenant, position of, 721  
 Low prices, evil effects of, 304  
 Macdonald's qualifications for writing on agricultural matters, 724  
 Machinery and the labourer, 107  
 Machinery, homestead, 198  
 Mackenzie, Bart., James J. R., and his tenants, 311  
 Managers of estates and trade unions, 531  
 Management of roads, 345  
 Manure, sale of, by managers of estates highly objectionable, 354  
 Manures, table of, 212  
 Markets, agents should establish, 489  
 Markets, situation of, very important, 491  
 Markets and roads, importance of, 190  
 Marquis of Headfort's motto, 24  
 Married and unmarried men, mortality per 1000, 457  
 Marshes abounding in fertility, 551  
 Masters to servants, duty of, 506  
 Matheson, Bart., Sir James, and the manufacture of peat, 208  
 Meadows, water, 557  
 Meadows, manner of applying water to, 561  
 Meaning of the word "land," 222  
 Memoranda, importance of, 12  
 Men and property, respect attending, 225  
 Meteorology and the farmer, 295  
 Millionaires, our lords and chiefs, 224  
 Mistaking activity for energy, 14  
 Mistletoe as an article of commerce, 240  
 Mixed husbandry recommended, 215  
 Money, food, and nutriment, 415  
 Money a very powerful agent, 469  
 Money qualification of farmers, 74  
 Mortgage of land, 680  
 Mortgages, frightful cost of, 331  
 Moors as pasture for sheep, 674  
 Mutual advantage, 62  
 Orchard and garden holdings, 147  
 Osier willows, a word on, 244  
 Our poor laws, 115  
 Our lords and chiefs, 224  
 Outgoing tenants, rights of, 204  
 Outgoing tenants, law respecting fixtures, 377  
 Outgoing tenants' crop, 203  
 Palmerston, the late Lord, on his cottages, 83  
 Parish business, 521  
 Park stock, 272  
 Particulars of estates for sale, 305  
 Peasantry at home, 100  
 Peat, manufacture of, 208  
 Peaty soils, value of, 207  
 People, commissariat of the, 413  
 Percentages, his Grace the Duke of Sutherland on, 291  
 Piece-work in labour recommended, 448  
 Plans of cottager, 87  
 Planting should be judiciously executed, 236  
 Planting, a word on, 245  
 Planting, preparation of land for, 247  
 Planting, table for, 258  
 Plants and land, 248  
 Plants, influences affecting, 246  
 Poachers, bands of villainous, 600  
 Poaching, new remedy for, 593  
 Politeness in an agent of consequence, 503  
 Population, importance of, 2  
 Population of the United Kingdom, 525  
 Population, Lord Stanley on, 31  
 Poverty, causes of, 475  
 Poor laws, 115  
 Poor, the Queen among the, 409  
 Practice of tenancy, 63  
 Practical knowledge indispensable, 15  
 Prices, local circumstances alter, 489  
 Prices below cost of produce bring about many evils, 403  
 Primogeniture, the custom of, 684  
 Primogeniture, the law of, 689  
 Prince Consort and the labouring classes, 103  
 Prince Consort set a noble example, 101  
 Professor Levi's calculations, 125  
 Proper dwellings elevate the labourer, 32  
 Property, enhancing the value of, 350  
 Proprietors and their agents, 567  
 Proprietors and their bailiffs, 569  
 Proprietors should have agricultural institutions on their estates, 264  
 Proprietors, disadvantages of their being absent, 368  
 Pruning and cuttings, 150

- Public associations and agents, 393  
 Public-houses and landed property, 474  
 Public-houses adulterate almost everything, 478  
 Punctuality very important in an estate agent, 502  
 Purchase of property and climate, 293
- Qualification of tenants, 363  
 Queen, The, and her servants, 509  
 Quick-set hedges, 270  
 Quick-sets required to enclose any extent of land, 270
- Rabbit-warrens clearly injurious, 578  
 Rainfall during 1867, 672  
 Railways and landed property, 341  
 Railways in use on farms,  
 Readjustment of holdings, 183  
 Reasons for certain results, 217  
 Recreation for the working classes, 122  
 Registered land, transfer of, 336  
 Registry of title to landed estates, 332  
 Regulation of rents, 161  
 Rent per acre in England and Wales, 229  
 Rent in the south-eastern counties, 229  
 Rent in the south midland counties, 229  
 Rent in the eastern counties, 230  
 Rent in the south-western counties, 230  
 Rent in the west midland counties, 230  
 Rent in the north midland counties, 231  
 Rent in the north western counties and Yorkshire, 231  
 Rent in the northern counties, 231  
 Rent in Monmouthshire and Wales, 232  
 Rent per acre in Scotland, 234  
 Rent in the seven southern counties of Scotland, 234  
 Rent in the five northern counties of Scotland, 235  
 Rent, increase of, 360  
 Rent, law respecting payment of, 380  
 Rent, agents should be careful in giving credit for, 529  
 Rental of Great Britain, 228  
 Rents, remarkable rise in farm, 175  
 Rents, evils of excessive, 182  
 Rents, raising of, 570  
 Rents, low, result in bad farming, 571  
 Rents payable in kind, 162  
 Rents, payment of, in ancient times, 168  
 Rents, comparative state of, in Scotland, 174  
 Rents in grass and corn-growing counties, 233  
 Rents, expediency of raising, 364  
 Rents, expediency of reducing, 365
- Rents should rise with the improvements of estates, 390  
 Reservoir embankments, construction of, 549  
 Residence for tenants, 191  
 Riches beneath the soil, 349  
 Rifle butts, caution in fixing on, 278  
 Road management, 345  
 Road-making in Ireland, 347  
 Roads and markets, importance of, 190  
 Roads, general laws in constructing, 342  
 Roads, public and private, 344  
 Rotation of crops, 77  
 Rooks and grubs, Captain Mackenzie, of Findon, on, 633
- Sale of an estate by an attorney, 227  
 Salmon, association for protecting, 644  
 Salt marshes abounding in fertility, 551  
 Scientific knowledge valuable—what it has proved, 214  
 Scientific knowledge indispensable in proper farming, 713  
 Scotch and Irish tenants, 159  
 Scotch lease, articles, conditions, and regulations of a, 315  
 Scotland, comparative state of rental in, 174  
 Scotland enriched by southern sportsmen, 617  
 Scotland, land rental of, 180  
 Sea-side towns, drainage of, 352  
 Seasons, influence of, on agriculture, 294  
 Selection of land agents, 15  
 Servants, practice of tipping, 486  
 Servants, treatment of, 507  
 Servants and their followers, 508  
 Servants rarely insensible to kindness, 510  
 Servants to masters, duties of, 512  
 Servants suited to various incomes, 515  
 Settlement, law of, 703  
 Sheep, various breeds of, 281  
 Sheep, the domesticated, 283  
 Sheep, remarkable prices of, 282  
 Sheep, wild kinds of, 284  
 Sheep always a hardy animal, 287  
 Sheep, peculiarities of the names of, 288  
 Sheep, weight of the fleeces of, 288  
 Sheep-shearing, 289  
 Sheep, number of, proportionate to number of dogs necessary, 650  
 Shepherds, half-yearly gathering of, 290  
 Shooting rents, marvellous rise in, 609  
 Shooting, alluring advertisements reprehensible, 618  
 Shopkeeping and the poorer classes, 492  
 Sites of houses, 193  
 Slate, how to test, 19

- Small farms, 132  
 Societies, benefits of local and national, 394  
 Societies, agricultural, utility of, 396  
 Soil, flax exhausts the, 70  
 Soil, varieties of, 206  
 Soil, riches beneath the, 349  
 Soils, similar, farmed differently, 79  
 Soils, alluvial, 210  
 Spade husbandry, 143  
 Sport in the olden time, 619  
 Sporting is on the increase, 595  
 Sporting grounds, demand for, 610  
 Sporting grounds, value of, 611  
 Sports of Scotland, her Majesty the Queen and the late Prince Consort loved the, 612  
 Stalwart arms the best capital, 136  
 Steam power, thrashing by, 420  
 Steam-engine, prices of, 425  
 Steam-engine, results of, 426  
 Stags, young and old, 276  
 Statistics, the late Prince Consort on, 523  
 Statistics of land, 169  
 Statistics of various countries, 525  
 Statistics of Ireland, 526  
 Stock, live, in the United Kingdom, 525  
 Stock necessary for a farm, 563  
 Straw ought not to be misused, 80  
 Sutherland, the Duke of, and percentages to tradespeople, 291  
 Sutherland, noble example of the ducal house of, 141  
 Subdividing of inheritances an evil, 690  
 Sympathy with the labouring classes, 121  
  
 Tenancy, practice of, 63  
 Tenant and landlord, 38  
 Tenant farmers, scientific knowledge indispensable, 713  
 Tenant, incoming and outgoing, 58  
 Tenant-right and Ireland, 22  
 Tenant-right and Lord Dufferin, 23  
 Tenant-right, 25  
 Tenants, position of life, 721  
 Tenants at will, 37  
 Tenants should insure their premises, 199  
 Tenants, a bad class of, 373  
 Tenants, the poor class of, 374  
 Tenants who impoverish estates, 375  
 Tenants should be allowed to re-let their farms under certain circumstances, 376  
 Tenants, agents, and freemasonry, 397  
 Tenants, kind words to the, 405  
 Tenants, qualification of, 433  
 Tenants who become insolvent, 530  
 Tenders, illustration of the advantage of executing works and improvements by, 460  
  
 The last hound to the post, 433  
 The love of Nature an instinct, 719  
 Thrashing by horse power, 421  
 Thrashing by steam power, 420  
 Timber, to measure round, 253  
 Timber, to measure square, 254  
 Timber, comparative weight of in a green and seasoned state, 255  
 Tithe commutation, 71  
 Towns, drainage of, 351  
 Trade unions and agents of estates, 531  
 Training, Captain Horatio Ross's system, 516  
 Tramroads, 343  
 Transfer of registered land, 336  
 Transplanting old trees, 251  
 Transplanting, rules for, 250  
 Treatment of servants, 507  
 Trees, adaptation of, to different soils, 249  
 Trees, choice of important, 252  
 Trees, decayed, should be removed, 268  
 Trees, barkings of, 261  
 Trees, fruit, 148  
 True and apparent level, 548  
 Tussac grass, growth of, in the Lews, 539  
  
 Under-drainage affects the temperature of the soil, 671  
 Upland pastures, form of a lease for, 51  
 Upper and middle classes, 124  
 Upright agents, 520  
  
 Valuation, compulsory, 59  
 Valuation reports, 220  
 Value of land depends on its produce, 299  
 Value of property, enhancing the, 350  
 Value of property, increase in, 173  
 Value of peaty soils, 207  
 Value of educated labour, 708  
 Valuing landed property, 219  
 Valuers who go only on the rental are not valuers, 219  
 Varieties of soils, 206  
 Ventilation, evils of defective, 93  
 Verbal agreements loopholes for artifice, 465  
 Visits and the agents of estates, 517  
  
 Wages regulated by supply and demand, 412  
 Wages, amount of, paid to servants, 514  
 Walls, stone and brick, thickness of, 391  
 Wants, physical and moral, 118  
 Waste land, improvement of, in Scotland, 662  
 Waste land, improvement of, details of expenditure and revenue, 664  
 Waste lands in populous districts, 676

- Water, stagnant, bad effects of, 96  
 Water, flow of, in ditches, 547  
 Water meadows, 557  
 Water meadows, utility of, 559  
 Water, abundant supply of, very important, 560  
 Wealth, distribution of, 117  
 Weekly markets should be established by agents, 487  
 Well-sinking near ash-pits most dangerous, 96  
 Well-sinking, new system of, 562  
 Wetness in the soil produces cold, 671  
 What is a good government? 537  
 What land agents should be, 74  
 Whitewash, value of, 97  
 Who are the successful men, 432  
 Willows, the growing of, 260  
 Wise cultivators, 218  
 Wood, to cover bleak hills with, 675  
 Woods, cultivation and management of, 235  
 Woods, dates on which the foliage expands, 241  
 Woods, time of felling timber, 242  
 Woods, proper age to cut, 243  
 Woods, rotation should be observed in planting them, 244  
 Working man's clubs, 123

## APPENDIX I.

- Acreage, population, and annual value of real property, in each county of England and Wales, assessed to Income Tax, clv  
 Act to establish equitable councils of conciliation to adjust differences between master and workmen, liv  
 Acts of Parliament important to land-owners and farmers passed in the session of 1867, xlv  
 Agricultural gangs act, liii  
 Agricultural returns for Great Britain in 1867, xcix  
 Agricultural statistics, ci  
 Agricultural Societies and their Secretaries, cxiv  
 Analysis of soils, clx  
 Analyses of vegetable substances, clxi  
 Analyses of beef and blood, clxv  
 Average prices of grain in Scotland, xc  
 Average size of farms in Great Britain, clvii  
 British and foreign land and grain measures xciii  
 Central Chamber of Agriculture, cxiv  
 Commercial numbers, civ  
 Composition of linseed cakes, cxxx  
 Composition of wheat, barley, oats, and straw, cxxxi  
 Composition of bean meal, meadow grass, green rye, Italian rye grass, vetches, lupines, sanfoin, and lucerne, cxxxii  
 Composition of white turnips, swedes, potatoes, parsnips, and carrots, cxxxiii  
 Contagious diseases (animals) act, 1867, lv  
 Corn and general trade of 1867, cev  
 Cure for the cattle plague, xxxviii  
 Drainage and improvement of lands supplemental act (Ireland), xlix  
 Expenditure on roads throughout England, xcii  
 Farm operations for the months of the year, i  
 Farmers' Club, cxci  
 Farmers' Clubs and their Secretaries, cxci  
 Feeding qualities of different articles of food, cxxxv  
 Fixed and moveable festivals—Scotch and English terms, cii  
 Herring fisheries (Scotland) act, li  
 High water tide tables, xc  
 Hypothic amendment act (Scotland), xlviii  
 Labouring classes dwelling act, xlviii  
 Law of landlord and tenant, xci  
 Legal memoranda, clxvi  
 Management of live stock, xi  
 Master and servant act, lx  
 Measures of length used in land surveying, lxxxvi  
 Measures of surfaces, or square measure, lxxxvii  
 Measures of solid bodies and weights, lxxxviii  
 Measures of capacity and weights, lxxxix  
 Measures of time and motion, civ  
 Medicine used in the treatment of the diseases of sheep, lxii  
 Medicine used in the treatment of the diseases of cattle, lxvi  
 Memoranda for calculation and valuations, cxl  
 Notes of the month, xxiv  
 Number of persons engaged in agriculture in England and Wales, clviii



- Privileges of members of the Royal Agricultural Society of England, cci  
 Public notices—such as are important to know, lii  
 Ready reckoning or marketing table, c  
 Review of the corn trade for 1867, ccxx  
 Rinderpest, treatment of cattle by Lord Kinnaird, xxviii  
 Royal Agricultural College, Cirencester, exciv  
 Royal Agricultural Society of England, exci  
 Royal Agricultural Society of Ireland, exci  
 Royal Dublin Society, excii  
 Rules of competition for prize essays in the Royal Agricultural Society of England, cc  
 Sale of lands by auction (amendment) act, 1867, l  
 Sewage utilization act, lviii  
 Smithfield Club, excii  
 Table I, for laying off land into acre lots, cv  
 Table II, for laying off land into lots of one rood each, cvi  
 Table III, for laying off land into lots of ten falls each, cvii  
 Table IV, for converting Scotch acres into imperial acres, with the price per imperial acre, cviii  
 Table V, for converting imperial into Scotch measure, cix  
 Table VI, for converting Scotch into imperial measure, cx  
 Table VII, for reducing Scots into imperial links, et. v. v., cxi  
 Table VIII, of square links, cxii  
 Table IX, for estimating the difference between the rent of a Scots and imperial acre, cxiii  
 Table X, to reduce imperial links into feet and inches, cxiv  
 Table XI, number of rods of  $5\frac{1}{2}$  yards of drains at certain distances apart, cxv  
 Table XII, number of rods of  $5\frac{1}{2}$  yards of drains at certain distances apart, cxvi  
 Table XIII, number of rods of  $5\frac{1}{2}$  yards of drains at certain distances apart, cxvii  
 Table XIV, distances of drains in common use, cxviii  
 Table XV, cost of land drainage per acre, cxix  
 Table XVI, comparison of the cost of drainage, cxx  
 Table XVII, showing the estimated value of the manure obtained from the composition of one ton of different articles of food, cxxi  
 Table for calculating wages and other payments, cxvi  
 Table of the diameters of pipes through which a required quantity of water may be discharged in a given time, cxxi  
 Table for purchasing leases, estates, annuities, &c., cxli  
 Table for renewing any number of years lapsed or expired in a lease, cli  
 Table showing the present value of a reversionary estate in fee, after the life of a person of given age, cliii  
 Tax on dogs repeal act, xlvii  
 The prices of wool, cheviot, and black-faced sheep, cxxii  
 The mean average temperature of each month of the year during ten years, cxxvii  
 The average quantity of rain during ten years for each month, cxxix  
 The estimated value of the manure obtained from the consumption of one ton of different articles of food, cxxxiv  
 The movement of cattle, special Act, xlv  
 Tithe commutation table, c  
 Weather guide, cxxv  
 Weight of produce per acre, xciv  
 Yearly average price of wheat, cxvii

## APPENDIX II.

- |   |  |
|---|--|
| <p>Opinions of the Press on Works by D. G. F. Macdonald, C.E., ccliii<br/>         Presentation of testimonials to D. G. F. Macdonald, C.E., cexlviii</p> | <p>Testimonials in favour of D. G. F. Macdonald, C.E., cexxiii</p> |
|---|--|

## ESTATE MANAGEMENT.

---

THE duties of a Land Agent are various and important. On their skill in the cultivation of waste lands depend, not only present success, but future progress. No observant or well-informed agriculturist can doubt for a moment that nearly every property in the kingdom is capable of immense improvement. Few landed estates are so sterile as to be altogether hopeless, and this for the simple reason that in few are the elements of fertility totally wanting. Experience has taught us that skill, combined with capital, can convert a bad soil into a good one. Agents should, therefore, bear in mind that, as the soil cannot be rendered productive, or the comforts and luxuries of life obtained without human labour, increase of population, the first as well as the grandest object of a country at large, should enter largely into the plans of a landed proprietor. The utmost fertility of soil, and the greatest felicity of situation, if unaided by a sufficiently abundant supply of labourers, only fill the mind with regret, because of the blessings which have been lavished in vain. Human industry alone can unfold and improve the gifts of nature. Thus, a continual increase of population is the chief and surest sign of the increasing wealth of a country, and every

well-regulated State will continue to be rich, secure, and happy, in proportion to the rate of such increase.

Authors have taken great pains to alarm their readers with the presumed dangers of an excessive population—a phenomenon which can never exist, unless it be in a state of society where the means of living are systematically monopolized. Where property is secure, and full scope given to industry, the most excessive population will always provide its own means of subsistence; but, should the number of the people ever increase beyond the powers of the soil to supply them, the natural and effectual remedy will be voluntary emigration to uncultivated countries. Rejecting narrow views, England has ever kept in the right and profitable track, dividing her industry pretty equally between agriculture and commerce, both domestic and foreign; and if she has occasionally leaned towards the latter, it has, no doubt, been chiefly owing to the attraction of superior profits. Some writers have not scrupled to recommend a dereliction of agriculture in favour of foreign commerce, because the superior profits of the latter would enable us to purchase corn cheaper than it could be grown at home, while others would have us cut down our towns into villages, yoke ourselves to the plough, and divide the land into petty holdings, as in a Chinese landscape, without leaving a park, a chase, or a horse-course in the country. Such reasoning

is obviously so unsound that it requires no formal refutation.

Agriculture can only flourish where there is a population. The farmer must have a market for his surplus production, or he will go to the wall. A market is people, and therefore the nearer the farmer is to these the less he need spend in getting rid of his productions, and the more he will be able to send to his bankers.

England, no doubt, owes much of her greatness to her working population. In all her great wars her chief dependence has been on the courage and devotion of her common soldiers. Whether at Waterloo or at Inkermann, how nobly did they perform their duty ! The thin, but invincible, red line at Balaklava proved how men reared in Highland glens, though only the sons of mere crofters, can exhibit an undaunted front. True soldiers are not producers ; but let every owner of acres bear in mind that they are the defenders of producers, and that, in proportion as the strength of the working-classes is considered and encouraged, so will every commonwealth be either weak or strong, whether it be in peace or in war.

Having said thus much on the importance of population, let us add that the number, qualities, and denominations of Agents must be regulated by the extent of the possessions and the particular circumstances of the lord or proprietor. An opulent fortune and extensive estates necessarily require



a proportionate number of differently qualified Agents. It is, however, always an object of the first consequence that every person chosen be thoroughly versed in the business of the particular department he is destined to fill.

With an accomplished Land Agent theory and practice go hand in hand. No proprietor will ever obtain the largest returns from his estate unless he secures the services of a really good Agent, who has a knowledge of practical as well as scientific farming, of law, accounts, woods, fences, minerals, and general business. He must have the various abilities and acquirements requisite to enable him to make the most of the estate under his management. By consulting books we profit by the experience of other men, enlarge our sphere of thinking, and obtain useful hints which might never have occurred to us, and thus gain, perhaps, in one year, knowledge which has cost the practical author many laborious years to acquire. The library of the landowner ought therefore to be chosen with a due regard to the requirements of the Agent and Steward, and the most approved and useful books in every department of agriculture and economical science should form a prominent portion of it.

It has been disputed whether the owner of a great property should depute his affairs to the care of a certain number of Stewards, each acting independently of the other, and accountable at stated

periods to the owner himself alone, or whether a chief confidential Agent should be appointed, to whom the several stewards should be subordinate, and on whom the owner himself may depend for general information on all his affairs and the security of his fortune; but nothing can be more certain than that an Agent-in-chief or commissioner is absolutely necessary to the prosperity and safety of such an estate, and to the want of an officer of this kind may be attributed the dilapidation of many a noble fortune.

The office of Chief Agent is necessarily one of great trust and importance, nor do the opportunities of securing a man capable of filling such an office to advantage often occur. To be a properly qualified Chief Agent to a large estate, a man should have attained to a thorough knowledge of the business of life; he should have had tried experience in men and things, and this cannot be expected under middle age. No material part of his attention should be engrossed by his own private concerns, as in such case he will certainly neglect the business of his employer. It is also absolutely requisite that he should not only have a thorough knowledge of practical agriculture, but a thorough insight into the nature of every improvement of which an estate may be capable, either above or beneath the surface; or, from its local situation, whether inland or upon the sea-coast. He should be well qualified to superintend the culture of wastes, the disposal of timber, the era-

dication or planting of woods, irrigation and warping, drainage, embanking, and the recovery of land from the sea, the cutting of canals, the laying out and repair of roads, and the construction of bridges. He should also possess considerable skill in rural architecture; and have sufficient acquaintance with law to enable him to make contracts with the tenants and tradesmen with whom he has to deal, and to remove all unnecessary and oppressive clauses with which leases are generally clogged. Nor is it less important that he thoroughly comprehend the nature of the various methods in which money business is transacted, together with the mode of bargaining advantageously in the purchase or sale of estates. His knowledge ought, indeed, to be universal, and extend to the valuable inventions and improvements of other countries as well as our own. He should, in fact, lay hold of every occasion to enhance the worth, reputation, and embellishment of the property committed to his charge. He should be able to fix his attention on details, and be ready to give every argument a hearing. This will not encumber his time too much, for his intellect should have been well practised beforehand. He should also be strong in principle, courageous, and of a stout heart; he should have a patient temper, and a vigorous but disciplined imagination, so as to execute calmly and plan boldly. He must have a deep sense of responsibility, and most implicitly believe in the power and

vitality of truth. He ought, moreover, to have acquired, and should invariably maintain, an ease of manner, a suavity of address, and a gentleman-like deportment, without which the finest talents and the most valuable acquirements seldom obtain for their possessor all the success he has a right to expect. He should never talk of the intentions of the landowner till they have been completely carried out. This is a very important caution. Some persons are naturally so talkative, that they no sooner hear of a design having been formed of purchasing a property, or entering into a speculation, than they take the earliest opportunity of acquainting all their friends with it. This is a great weakness; the reasons are obvious, and will naturally suggest themselves to a practical mind.

The allowance of a liberal salary, adequate to the responsibility and labour of the Agent, has often been insisted on, and with the utmost reason, as highly conducive to the interest of the owner; for the Agent, if dissatisfied on this essential point, will be either induced to bestow too little attention to his trust, or tempted to indemnify himself by accepting perquisites, which, it is plain, must ultimately come out of the pocket of his employer, and which open an inlet to the grossest frauds. The system of paying agents by a per centage on their receipts has an extremely bad tendency. He should invariably be paid by a fixed salary, and have no perquisites of any kind.

Mr. G. G. Grey, of Dilston, well-known as an Agent of the highest standing, states, with reference to the special training required for the office :—The duties of a Land Agent being so varied, you will naturally expect that the qualifications for performing those duties should be many, and that a man cannot be expected to possess those qualifications without a special training. The basis of this training is undoubtedly a good general education, and a practical knowledge of agriculture. It may be a question which part of such education should come first. A boy who is brought up on a farm, returning to it from school, has a considerable advantage over boys in other classes of society when he goes to an agricultural college, for with him the learning is not all theoretical; though he may have done nothing but play at home, he knows the meaning of agricultural terms, and the names of objects. A practical knowledge of farming being an absolute necessity for a Land Agent, in any case he should go from school to work for a year or two on a good farm, before he goes to the agricultural college. At school the best foundation for all education is a considerable knowledge of classics, it gives a facility for acquiring learning, a refinement of mind, and an aptitude for correct speaking and writing, which is most useful in after life to a man who is to be brought much into contact with others. A knowledge of mathematics is also necessary in training the mind to reason soundly, to distinguish between



cause and effect, and to arrive at proper conclusions from evidence, as well as to attain that knowledge of mechanical principles, and aptitude for understanding machinery, which a Land Agent should possess. Having been thus grounded at school, the intended Land Agent should make himself master of the every-day work of the farm, and then go to an agricultural college, where he can apply himself to acquiring the more special knowledge required for his calling. There he must study chemistry, mineralogy, geology, botany, natural history, surveying, planning, measuring and calculating work, book-keeping, and as much of law as may be applicable to his profession. Without some acquaintance with all these subjects, he will find himself at some time or other entirely dependent on a subordinate for guidance. From college he should go at once to the office of a good Land Agent, where he can learn the duties of the office, and at the same time be able to watch the operations of farming, and gain practical experience in valuing land. This he must do as a pupil, assistant, or under-agent, as circumstances permit. Having spent two or three years in this way, if he is steady and intelligent, he should be qualified to undertake an ordinary agency.

We have already stated that the qualifications vary according to the degree of responsibility incurred; but in every case there is one requisite, for the absence of which no amount of talent can compensate; the Agent must be at heart a gentleman—

in other words, an upright, conscientious man, who, without fear or favour, is determined to do his duty, and mediate between the two interests with which he has to deal. He must be patient and courteous in demeanour, even when his temper is sorely tried, as it often will be; and it is surprising how powerful an influence is produced by kindness and consideration, when combined with firmness. The golden rule should ever be the guide to his conduct, because his position is often one of such power that there may be temptations to abuse it.

It not unfrequently happens that the Agent stands in the place and wields the authority of the owner, who does not appear on the surface, but pulls the strings more or less from behind. Much that is done may not command his entire approval, but his duty being to carry out the wishes of his employer, he does so heartily, and endeavours to promote success, though things may not be quite to his mind. And this leads to another point—viz., the importance of perfect confidence between the Agent and the principal. In order that the best may be done, the Agent should feel that he can at all times freely discuss matters, and state his opinion unreservedly. Having done so, and advanced all the arguments of which he is master, he must be prepared to carry out his own or his employer's views with equal alacrity.

The question of whether an Agent should be resident or not will depend upon the extent of the

property. Where there is sufficient to occupy a man's whole time we should decidedly prefer a resident Agent, as, being always in the midst of operations, he is more master of the work, checks idleness and dissipation, and exercises a more personal influence over the people with whom he has to do. We trust it will be evident from the above that the duties of an Agent on a large estate are neither light nor irresponsible, and that it is most important to secure for such positions gentlemen of character and education.

Every estate should be carefully surveyed, and accurately described in a map. Each tenant should have a copy of the plan of his farm, showing on a correct scale the size and boundaries of the fields, and distinguishing their respective qualities, whether in grass or tillage. Especial care should also be taken to mark distinctly on the map such lands as require draining, and the peculiar causes of the wetness, so as to enable the proprietor to judge of the correctness of the principles on which the Agent should conduct the draining operations. Any proposed new arrangement of the fields, by enlarging or otherwise, with a due regard to the circumstances on which their size and shape ought to depend, such as their aspect or inclination, and the rotations to be observed, ought also to be clearly delineated on the map. It is particularly necessary, both for Agent and tenant, to keep an exact note of all common field lands, and, where the bounds of any parcel of land are dubious,



to have them ascertained and defined with durable land-marks. The Agent ought to ride over the estates, and make a personal survey sufficiently often to enable him to offer timely advice, and nip any irregularities or encroachments in the bud, and to see that all repairs are properly and substantially performed, fencing kept up according to agreement, ditches scoured, water-courses free, and common rights fairly enjoyed according to the custom of the manor.

From the survey, regular memoranda should be drawn of every thing necessary to be remarked or executed ; the spots where deficiencies may be found and improvements made ; the state, both at home and amongst the tenants of the homestead, as to convenience, buildings, and repair, insurance, dates of leases, rates, &c., game, live and dead stock, timber, fencing, planting, draining, paths and highways, culture, commons, rivers, lakes, or sea-coast, neighbouring estates convenient for purchase ; in a word, nothing relative to the estate, which deserves attention, should ever be intrusted to the uncertain custody of the memory, or to loose and straggling papers.

A very strict scrutiny into the character and conduct of inferior servants and labourers is at all times necessary, otherwise it would be utterly impossible for an Agent to discharge his duty faithfully to his employer, or to render justice to his own character. He ought never to take anything

on trust, but having obtained a thorough practical knowledge of the duties of every servant on the estate, he should watch their performance with his own eyes, early and late.

He should obtain a general idea of the proper method of keeping accounts from a good treatise on book-keeping, which once accomplished, he will always be able to keep his books in a business-like, comprehensive, clear, and precise manner.

To urge the desirability of keeping account-books neatly and accurately is superfluous, but it is a point of great importance that they should be frequently and regularly audited. To be lax in this respect, is neither more nor less than to lead a man into temptation; and even if the path of rectitude be nominally kept, entries and work will be allowed to get in arrears, and in anything but a creditable condition. Then when the day of reckoning comes—for it will come sooner or later—the results will not be to the credit of either party; and it is hard to say which is most to blame, the lax and careless employer, or the servant on whose shoulders the blame commonly falls.

Another serious evil to be avoided is, the placing of the moneys of the proprietor so that they can be freely used, for personal purposes, by the individual through whose hands they pass. A right arrangement of accounts and of banking business will prevent this.

As to law, it is convenient that the Agent should

not be ignorant of those branches which relate to landlord and tenant, to parish business, the poor, and the highways, commons, forests, &c.

There are some men whose failure to succeed as efficient Land Agents is a problem to others as well as to themselves. They are industrious, prudent, economical, and zealous in the interests of the estate under their charge; yet, after many years, the property does not improve. It is said that fate is against them; whilst the truth is, that they mistake activity for energy. Confounding two things essentially different, they have supposed that if they were always busy they would be certain to be advancing the interests of the proprietor. They have forgotten that misdirected labour is but a waste of activity. What a man does must be made to count, or it had almost as well have been left undone. The merely active man may be busy from sunrise to sunset, and yet only fritter away his labour on trifles. The Land Agent in some cases has merely an executive faculty, when he should have a directive one; in other words, he makes a good clerk for himself, when he ought to be thinking how best to develop the subjects under his management; and bestows as much labour and thought on trivial affairs as on matters of great moment. Energy correctly understood is activity proportioned to the end; it is persevering, steady, disciplined; and to call occasional periods of application energy, would be a sad misnomer. Napoleon, in the Plains of Champagne,

sometimes fighting two battles in one day, first defeating the Russians, and then turning on the Austrians, is an illustration of energy. The Duke of Brunswick dawdling away precious time when he invaded France, at the outbreak of the first Revolution, is an example to the contrary. Activity beats about a cover, like an untrained dog, never lighting on the covey. Energy goes straight to the bird.

The contrasts in the management of estates are as great as those in farming, simply because men of all professions under the sun are now-a-days engaged to supervise landed property, without regard to qualifications. The best Land Agents are those who have had a scientific and practical education. The knowledge which is necessary to make a thoroughly intelligent farmer is also necessary to make a thoroughly efficient estate manager; and this knowledge has to be drawn from a great many sources. Geology and mineralogy must instruct him as to the formation of the crust of the earth, the qualities and elements of the substances which compose it, and the character, nature, and properties of all the minerals embedded in it. Chemistry will teach him to analyze the soil, to trace out every element of its fertility, and its just proportion; will unfold to him the principles of its exhaustion and replenishment, and guide him in every attempt at its improvement and amelioration. Botany will inform him of the nature and structure of plants, from the

forest tree to the herb, of their uses, value, and adaptation to the climate and soil of the estates under his care. Entomology will teach him the habits of insects injurious to vegetation, and how to prevent or remedy their attacks. Natural philosophy will explain to him the principles of mechanics, and from these he will learn how to estimate the value of every mechanical contrivance employed or proposed in rural art. In all these branches of science the highest genius and the most persevering research have long been devoted to the ascertainment of truths, simple only when demonstrated, and of the greatest practical value to those who dream not of the learning and toil necessary for their discovery; and all these the Land Agent should know. If knowledge is power in agriculture, as well as in every other department and business of life, it is eminently so in the management of landed property.

As the Hon. Samuel Laing, M.P., so aptly said, in one of his brilliant speeches, "You have often heard the saying that 'knowledge is power,' and so it is. But there is something more to add. In the long run, sense will distance cleverness, and character will carry the day against intellect. Recollect, then, as a cardinal rule, that 'Truth is power.'" The book Land Agent may be a thriftless theorist, but the practical man, while he avoids visionary speculations and hazardous experiments, knows how to turn to account the experience and the sugges-



tions of others. It will therefore be readily conceded that in all the pursuits of life practical knowledge is essential to success ; that it is one thing to understand principles, and quite another thing to work them out ; and that a man may be a good theoretical Land Agent, but a very bad practical one. Exemplifications of these positions are unfortunately but too numerous. In too many instances those who have the management of landed property do most absurd things, solely because such is their neighbours' practice, and such was their fathers' before them. Surely nothing can be more detrimental to landlord and tenant than having estates supervised by persons altogether without the necessary practical knowledge of agriculture, stock-breeding, and the multifarious operations of rural economy ; and utterly ignorant regarding the wise management of tenantry, the real resources of estates, and the true interests of proprietors and tenants. The system of these persons too often consists in enforcing rents by the aid of a lawyer and bailiff, and ends in driving good tenants into difficulties and despair. Without any knowledge of those portions of science and mechanics necessary in the management of an estate, their leases are marked with confusion, absurdities, discrepancies, and obsolete conditions, which greatly injure the landlord, oppress the tenant, and seriously damage the collective interests of agriculture, causing much unpleasant and fatal misunderstanding between the contracting parties,

and inflicting ultimate loss on the country at large.

It is a great pity that noblemen and gentlemen suffer themselves to be persuaded to employ country attorneys for their Agents ; because it seldom happens that they are qualified for that trust. They rarely have any knowledge of agriculture. True there are a few who have, and who rank among our most scientific and able cultivators. Gentlemen so qualified, with all the additional advantages of education, legal knowledge, and consequent knowledge of the world, would be eligible enough for the office of Land Agent, if they had leisure to fulfil its duties ; but to appoint a man to the superintendence of a landed estate, merely because he is a lawyer, and can draw covenants and enforce payments, is kindred policy with that of choosing the leader of an army because of his skill in arithmetic. In fact, the too general custom of employing attorney-agents has been a great bar to agricultural improvement, and, in that light, a national loss. These gentlemen carry all their habitual predilection for precedent from their office into the field ; they are usually as much averse to innovation as the farmers themselves, and consequently covenants, rents, and farming practice remain precisely in their ancient state, however absurd and unprofitable ; repairs and the most necessary erections are neglected ; and whenever an advance of rent is made, it is raised indiscriminately upon the different



estates, independently of those reasons which ought to be final in such a case, and whether part of the estates, from local circumstances, may be able to bear it or not.

Taking the management of landed property in its widest sense, it is obvious, that in order to develop its capabilities on the most profitable principles, the Agents and bailiffs entrusted with the execution of the works, must be educated for the offices they fill. The sooner the opinion, that the main duty of a head-agent is to collect rents and prepare leases, is relinquished by lord-owners, the better will it be for their own interest. An Agent, having a comprehensive knowledge of agriculture, and otherwise possessed of necessary qualifications, will perform the legal and the accounting business, as well as one who can only attend to the latter departments; and, by his practical skill in everything relating to the resources of land, he will prove the main spring of the improving works which the proprietor may be desirous to have carried out. In these operations, a properly qualified sub-agent will effectively co-operate, and he again will be aided by an overseer, capable of carrying out the instructions that he may receive. With three such officers—a principal or non-resident Agent, a local Agent, and a bailiff,—of the right kinds, connected with every large estate in the kingdom, a fair expenditure of capital will be sure to draw forth its capabilities in a profitable and highly satisfactory

manner. Improving tenants will be encouraged, and co-operated with, and though rack-rents will be avoided, yet the land will assuredly increase in value. On the other hand, a property managed by mere pen and ink men—whose faith in agricultural returns never goes beyond a promised rental, and who will therefore lay out nothing on improvements—may continue to yield the old rents; but except from causes common to the whole country, its value will not be increased. Mere office men are utterly incapable of profitably drawing forth the latent resources of estates. They can only exhaust them by copious sweatings; but if proprietors are contented to submit to this, it may be thought that no one has a right to interfere. The question, however, of providing food for the nation, must set this point at rest. Where is it to be got? Are we to continue importing millions of quarters of wheat annually? If it can be shown that this country is quite capable of supporting its inhabitants, provided every landed property were rightly managed, these queries are not to be thought so completely out of place, as may at first sight appear. The proprietors of estates have the answering of such questions in their own hands, and if they choose to select suitable managers to look after their business, they will be taking the first step towards the attainment of a great good, individually and nationally.

Mr. Grey, of Dilston, stated, in his excellent paper, read before the Hexham Farmers' Club, that

the disqualifications for the office of Land Agent are many. Retired soldiers and sailors do not generally make good Agents, though they have some qualities which are useful, such as punctuality and carefulness. Retired butlers and house stewards may be estimable men, but they are not such as should be set over tenant farmers. Poor relations, for whom some provision is desirable, would generally cost an owner less if he were to make them an allowance to live at Bath or Cheltenham. Mercantile men are too apt to look at everything in a purely mercantile spirit, not seeing distant or contingent advantages. Farmers who have failed in farming have the disadvantage of undertaking to manage another man's affairs when they could not manage their own; nevertheless when their failure has been owing to want of capital or unavoidable calamity, and when they are educated and upright men, they frequently make good Agents. Head clerks promoted from the office are very apt to find themselves in a position for which they are unfit, having been too much bound to routine and detail to take large views of management. They are apt to be too much the servants of the landowner, and not enough mediators between him and the tenants. Lawyers, attorneys, and writers, though frequently entrusted with the management of estates, are about the most disqualified. Their education, bent of mind, legal way of reasoning and treating all questions, are a positive bar to success in the management of

estates, and we consider it an absolute misfortune to the country that so many estates are under their care. From their special training they look narrowly into legal obligations and the rights of property, and from want of experience in country affairs they are incapable of judging of the propriety of modifying obligations which may be obsolete or inexpedient. Landowners in Scotland and Ireland, we believe, more than in England, commit the mistake of making such appointments. To this rule we confess we know some distinguished exceptions in men, who, having a taste for country pursuits, spend more of their time in the country than in their offices. A town residence, though not an absolute disqualification, is a great disadvantage to a Land Agent, for though he may be within as easy reach of the estate as a country Agent, his business is apt to degenerate into office work, and his visits to the estates and intercourse with the tenants to become more formal than those of an Agent residing on an estate and moving about constantly in the country, and generally such Agents depend much more on reports from subordinates, and interviews with tenants at their town offices, than Agents who meet tenants in their own fields and homesteads, and judge from their own observation.

The condition of Ireland, as regards its rural population and "tenant-right," has again been brought before the Legislature. Though there is

often much discrepancy in the respective statements, it would seem but fair and reasonable that a tenant should have compensation for improvements. Some equitable measure of tenant-right is, doubtless, much needed for the prosperity of the Irish people; and let us hope that such a measure may soon be adopted. Lord Dufferin takes the true view of this right as it exists in a great portion of the north of Ireland. Men who often can ill afford it pay large sums merely to get possession of land rented to its full value, and without a lease; and in almost every case an arrear of rent due to the landlord is paid out of the purchase, which often takes the greater part of it. On many estates most of the tenants have thus become occupiers. The custom grew up with the concurrence and to the advantage of landlord and Agent, and however great may be its inconveniences—and they are acknowledged to be great, though it has given security for rents at all times—the only fair way to put an end to it is that which it appears a good landlord like Lord Dufferin suggests and adopts—viz., paying the tenant on out-going a fair sum for his tenant-right, as it is very justly called, when the landlord or his predecessors have allowed the custom and profited by it. But some landlords act very differently, and proceed to put an end to the evil by disallowing the sale of tenant-right, and turning out tenants without compensation, under the plea that they had made no improvements; but ignoring the fact that this



tenant-right is not a compensation for improvements, but a repayment of an investment which the occupier had made with the landlord's concurrence, and on the faith of his being allowed to recover it whenever he should leave the land. But such reaches of good faith must have a most unfavourable effect, though the law of the case is clear. Of course, the landlord must be rich to pay the compensation to outgoing tenants; but it is most unjust that any landlord should first make a profit, to the injury of his tenant, by taking his arrears habitually out of the purchase-money, as has been done for generations, and then make a second profit by seizing upon that which he had allowed to be sold and bought. We should hope that a check may be put upon this most unfair dealing, which is made too plausible by the plea that this sort of tenant-right is injurious to all parties.

The Marquis of Headfort, presiding at a dinner in connection with the Headfort Estates Cattle Show, in Ireland, made the following remarks on the land question :—" My motto for my tenantry has always been ' Live and let live,' and I think that principle has always been carried out on this estate by my Agent. A bill affecting the tenure of land was introduced by the late Government. At first, misled by some of the speeches against the bill, I was induced to believe it was a bill for making landlords and tenants change places—which I had a natural objection to do; but when I came to look into the

bill itself, I really could find nothing objectionable in its leading principle. That principle is simply, that if a landlord ejects a tenant-at-will, he must compensate him for improvements that have added to the letting value of his holding. Now, that seems to me simple justice, not a confiscation of the rights of property at all, but a recognition of them."

Lord Dufferin thus explains the vexed question :—Enormous sums are given for the "tenant-right" of a farm on which no improvements have been made by the outgoing tenant, and by whom all former improvements may have been utterly exhausted. In order to effect the purchase, money is borrowed at a high rate of interest. The new tenant is unable from want of capital to stock or work the farm, and he struggles on for some years till he, too, is compelled to sell his tenant-right, and another comes to go through the same process. Such a system could scarcely be tolerated by the landlords, if one of the conditions on which the new tenant is accepted were not the payment of all arrears out of the purchase-money. "There are scores I could name," says Lord Dufferin, "who have actually occupied farms under me, have lingered in possession a certain number of years, and have finally been driven out, not by act of mine, but by the persecution of their creditors throughout the country, on account of debts contracted for the express purpose of paying for the tenant-right of the land which they were never able to cultivate, and for which they never paid the

rent.” When his Lordship succeeded to the Claneboyc estate, he resolved to check this ruinous competition, and to prevent the incumbrance of his land by an embarrassed tenantry. This he did by requiring that no new tenant should be admitted to the exclusion of the representatives of those who held under his father and ancestors for many generations, invariably giving the preference to a tenant adjoining the vacated farm; and by paying the outgoing tenant the price of the “tenant-right,” giving him the “fairest possible compensation for all *boná fide* unexhausted improvements.” In this way the existing tenants get additions to their farms on easy terms, and the landlord is satisfied with three-fourths of the rent he might obtain by availing himself of the competition for land. He wishes, however, to have the burden and responsibility of the valuation cast upon an experienced public officer of the Encumbered Estates Court. We readily admit that, whilst advocating leases of fifteen or twenty years’ duration, we disapprove of the long leases granted in the last century for sixty-one years or three lives, to which must be ascribed, in a great measure, the backwardness of agriculture in a country possessing so many natural advantages. Such preposterously long leases encourage idleness and neglect of the most common and necessary improvements. Leases of too long duration are worse than none, both for the landlord and tenant. We do not for a moment advocate a right

which would give to the tenant the power of making alterations without the consent of the landlord—still less against his consent—and then charging him with the cost. What we suggest is, simply, that proper encouragement should be held out to the tenant to make real improvements, and that he should have security upon a change of occupation, for reimbursement of his outlay, if he has not occupied the holding sufficiently long to reap the full benefit of his improvements. No reasonable landlord would object to this, and no reasonable tenant would ask for more.

Agriculture is a science—a noble science—which requires to be deeply studied and industriously practised. Experience has repeatedly and clearly proved that capital laid out in the application to the soil of a well planned system, has been amply repaid by an increased and superior produce. There is in this respect no want of encouragement for the practical man, the only obstacles to improvement are the slow, in many places the very slow removal of ancient prejudices from the minds of the farmers, and the want of conviction on the part of some landlords, that their land can only be effectually improved, and thus rendered of greater value to themselves, by giving to their tenants an interest for a certain term in the soil, sufficient to enable the latter to obtain an adequate return for money laid out in prosecuting a beneficial system of cultivation.

By encouraging the agricultural improvement of Ireland, we greatly increase the prosperity of the United Kingdom. We are aware that an exodus of upwards of 3,000,000 of people has taken place within thirty-two years, or at the rate of nearly 100,000 per annum, an amount hitherto unknown in the annals of any country. It might be expected that so great an emigration from the rural population would have caused a great deal of land to go out of cultivation ; but such has not been the case. We demur entirely to the view taken by some in Ireland that the population is excessive, and requires to be diminished by emigration. We also, with equal warmth, deny that the Irish lack energy and enterprise. Their readiness to seek their fortune in distant lands disproves the charge. Ireland is as eager in the race of improvement as more fortunate countries. The days of her adversity are, it is hoped, now passed away, and, with the aid of capital, she will doubtless rapidly develop her great resources, and attain that high prosperity to which the genius of her people and her natural productiveness entitle her. The Lord-Lieutenant, at the Dublin Banquet, the other day, very truly said : “ We see railways established throughout the country that have cost no less than £24,000,000 ; and we know that this capital to a considerable extent is owned by Irishmen, showing that when there is a sound and good enterprise to be undertaken, Irishmen are not backward in energy to



undertake it." Let us, then, wish that noble and generous-hearted people every success, and a greater development of agricultural prosperity.

The conclusion which one of our most enlightened observers, Mr. Samuel Laing, M.P., has drawn from his travels in Norway, are very interesting and important. They are these:—

*First.*—That the structure of society, in which, through the effects of the natural law of succession in equal shares, there is a very general diffusion of property among all classes and individuals, is better calculated for the end of all society—the producing the greatest possible quantity of well-being and happiness to the greatest number of persons—than that structure in which the possession of property by the operation of an artificial law of succession, such as the feudal law of primogeniture, is restricted to particular classes and individuals among the families of the community.

*Second.*—That the influences of property upon the human mind—the never-ceasing propensity to acquire, to save, and the equally strong propensity to indulge in the tastes and habits generated by property—form the real checks which nature has intended for restraining the propensity to propagation by improvident marriages, and for preventing the population of a country from exceeding the means or property upon which is to subsist. Consequently the diffusion of property through society is the only radical cure for that king's-evil of all

feudally constructed societies, pauperism and over-multiplication. Consequently, the idea of bolstering up this unnatural structure of society, as proposed by Dr. Chalmers and other eminent political economists, by inculcating in the minds of the labouring classes a fictitious moral restraint upon marriage—an act which may be eminently imprudent, but can never be designated as immoral, without confounding together prudence and morality, and overturning all the landmarks of human virtue—is as contrary to political as it is to moral principle.

*Third.*—That for the admitted evil condition of the vast population of Ireland, there is no other effectual remedy than an alteration in the law of succession to property, by which, without injury to the just existing rights of any living individual, the succeeding generations in that country would become gradually connected with its property; inoculated and imbued with the civilizing tastes, habits, and influences thence arising; and their increase of numbers thus placed under the restraint of the only natural and effective checks which Providence has imposed upon the tendency of population to exceed the means of subsistence.

At the Annual Meeting of the Tipperary Union Farming Society, in September last, Lord Stanley said: “If you look to the rural districts alone, you will find that the English and Scotch, as well as the Irish population, have decreased. I state that because

I think it is important, in many points of view, that you should not consider your own position as exceptional. In the districts into which the population of England is divided, two-fifths of those which are purely agricultural show a diminution; and so in Scotland in twelve out of thirty counties. Now, where did the people go who left those districts? Not, for the most part, out of the kingdom; they went into the great towns. Recollect that has been the case with a large proportion of the Irish, as well as the English and Scotch populations. We have in Liverpool alone, and the district immediately surrounding it, upwards of 100,000 born in Ireland. It is reckoned that in England and Scotland altogether there are 800,000 Irish. I think, when gentlemen speak or write of the decrease of the population in Ireland, they ought in fairness to bear this in mind that, to that extent at least, the decrease does not represent an emigration out of the country as a whole, but simply a movement from one part of the country to another." Mr. Purdy also shows that, in the ten years which elapsed between 1851 and 1861, the very large decrease of 44,790 persons, or 2·84 per cent., had taken place in the number of the agricultural population. Now, compare this state of things with the actual state of Belgium. The Report for 1859 of the Provincial Commission of Agriculture of East Flanders says: "Agriculture is the first and most necessary of all our industries; she employs the

great majority of the population of the country, and pays the heaviest contributions to its treasury. It is, then, reasonable and just that all which is calculated to contribute to its prosperity should occupy the attention of the public government. Mr. Barron, Secretary of Legation at Brussels, in his Report on Belgium, lately published, says: The density of the population of Belgium—425 per English square mile—is greater than that of any kingdom in the world, including even England, Saxony, or Lombardy, which contain 377, 389, and 400 per English square mile. In East Flanders it reaches the extravagant figure of 700 per English square mile. We think these figures show that the agricultural population is diminishing in England, and that the land in England is capable of supporting a much larger population. Whilst this is so, nothing can exceed the prosperity of the country commercially. The year 1866, though marked by a financial panic of calamitous intensity, was, nevertheless, a year of unexampled activity in the national trade. It would almost seem, indeed, as if the great industries of the country were independent of the state of the money market. We have had many a marvellous report of the business transacted in twelve months of commerce, but the figures now published surpass all former experience. The aggregate value of our exports, which reached £160,000,000 in 1864 and £165,000,000 in 1865, approached closely to £190,000,000 in 1866. The trade thus represented

was conducted with every quarter of the world. There is hardly a spot upon the face of the earth to which the products of our industry are not conveyed. We send goods not only to Arabia and to Persia, not only to Abyssinia and Madagascar, but actually to the savages of Patagonia. We deal equally with Asia and Australia, North America and South America, Egypt and China, Morocco and Peru. Twenty-two colonies and forty-seven foreign states are enumerated in our list of customers.

Leases give to tenants an independence of feeling approaching that of rural freeholders, and surely nothing can be more desirable. The farmer feels himself, as it were, connected by a visible link with those who preceded him, and with those who will follow him. Perhaps the farm of this man has come down to him from his fathers. They have gone to their last home; but he can trace their footsteps over the daily scenes of his labours. The roof which shelters him was reared by those to whom he owes his being. Some interesting domestic tradition is connected with every enclosure. The favourite fruit-tree was planted by his father's hand. He sported, in his boyhood, by the side of the brook which still winds through the meadow. Through the field lies the path to the village school of his earliest days. He still hears from the window the sweet tones of the Sabbath bell which called his forefathers to the House of God; and close by, is the spot where he laid his parents down to rest, and where he trusts,



when his hour is come, he shall be dutifully laid by his children. These are the feelings of the rural freeholder—these are the feelings of the leaseholder. Words cannot paint them, gold cannot buy them; they flow out of the deepest feelings of the heart; they are the life-spring of a fresh, healthy, generous national character.

Next to the safety of human life, the security of property constitutes the foundation of society. It has been proved to be the basis of every agricultural excellence; and as both owner and tenant expect the fruits of their labour to accrue to themselves or their posterity, it is to be hoped that leases, on just and liberal principles, will be universally given. That justly popular nobleman and eminent statesman, Lord Stanley, is reported to have said when presiding over the Royal Agricultural Benevolent Institution, “I, for my own part, do not hesitate to say that I wish every tenant-farmer in this country had a lease.”

We gather from the able editor of the *Agricultural Gazette*, that Lord Shrewsbury stated, at a late Agricultural meeting, that nothing would induce him to give a man a lease, because, in the first place, a lease is all on one side. The landlord remains, but the tenant, if he be inclined to be fraudulent, may go.

His lordship added, “I boldly and honestly state I will never surrender my property to a tenant. I mean that no man who will allow his sons to poach

and act disgracefully, shall have control over my land for a number of years. I will have an agreement for the mutual benefit and protection of myself and the tenant, and if any agreement really better than the existing one can be found, I will adhere to it. I hope that my tenants will feel confidence in me and my successor, and that they will be content to lay out their money with a feeling of security."

This speech was thus commented on in Mr. Morton's paper before the Society of Arts. He said:—We ask first, with reference to leases, is it true that the lease is all on one side?

On the contrary. Put all the advantages on that side which it confers, it is the instrument which not only secures those advantages to the tenant, but which secures to the landlord the annual sum or rent at which he himself has valued them.

Again, with reference to tenancy at will we ask—Does the landlord remain? We all know that the word changeable applies to a man's will as well as to his person. The landlord does not remain, and his successor, whether he be the inheritor of his property, or himself in a different mood of mind, may, in the case of a tenancy at will, arbitrarily put an end to an unwritten bargain.

Thirdly, as between leases and tenancy at will, Lord Shrewsbury says, I will never surrender my land for a series of years to a tenant. Under

tenancy at will, however, a tenant is asked to intrust his property in great measure, and I will say in *greater* measure, to his landlord. It is much truer to say the land remains, than it is to say the landlord remains; and I do not hesitate to affirm that in the case of well-cultivated land of average fertility, there is not under leasehold farming so much of the landlord's property per acre, in the power of the tenant to injure or destroy, as in the case of tenancy at will there may be of the tenant's property per acre within the landlord's power to appropriate. A landlord may say, I will never surrender my property to a tenant, but, in point of fact, he never does surrender his property to a tenant. The land remains—it cannot be destroyed. We hear from Baron Liebig of the exhaustion of the land;—no such thing is known in practice. I do not suppose that, in average circumstances, what is practically known as worn-out land is ever injured to the extent of two years' purchase; that is to say, a farm—and if it be held on lease, we must suppose the tenant to have been, not only fraudulent, but a fool—a farm which has been injured as much as such a one might do it, would be readily taken at the old rent, provided the new tenant had it the first two years for nothing. The injury which a fraudulent tenant can do—*provided he be also a fool*—may thus amount to £3 or £4 per acre. On the other hand, taking the case of a man farming land as it may be profitably farmed (in the manner

which alone contributes to agricultural progress), where a large expenditure has been incurred, perhaps in draining, certainly in liming, in burning, in marling, in artificial manures, and oilcake and other purchased food for cattle and for sheep (all of which require time to realize their effect upon fertility), and we say the landlord has more than £3 or £4 per acre of the tenant's property within his power.

‘Well!’ it may be rejoined, ‘it is the object of this model farm agreement to graft on the system of tenancy at will such a bargain as shall insure the repayment of these £3 or £4, or whatever the unexhausted outlay may be. Lord Shrewsbury proposes to adopt this, and the objection to which you have thus alluded—putting it in as personal a manner as possible—thus falls to the ground.’ We cannot help the personal aspect in which the systems of lease and tenancy at will of necessity are regarded.

It is the personal aspect which is the real one. Landlords inevitably entertain the personal question first and foremost; and if obtruded on the one side, it must be entertained upon the other. It is even less a tenant who will cross-crop and starve the land, than a tenant ‘who will permit his sons to poach and behave disgracefully,’ that is feared. After all, it is the fear of having an ill-conditioned set of neighbours that is at the bottom of the dislike of leases. Experienced Land Agents will tell you that it is altogether a mistake to apply general rules to the management of property. They say—The

majority of farmers don't want a 'field for the investment of capital,' as the phrase goes; they want an occupation and a home. Leases will not change the nature of a man; and, in fact, few things more obstruct agricultural progress than the system of dealing with farmers as a class (which they are not), instead of as individuals on their individual merits, which include as much variety as exists among any other body of their fellow-countrymen.

To this most people will, we think, agree; and in accordance with it, one of the chief advantages we claim for leases is, that where adopted as a system, greater individual care is taken in the admission of tenants on an estate. And in accordance with it, too, one of the chief articles in the indictment against tenancy at will is, that it is based upon a class-treatment of the very kind which is thus condemned. It has, we believe, been proved in other walks of life that the plan of universal restriction—of treating all men with suspicion—of making your general arrangements hinge on the possibility that every man is a rogue—is a blunder. It is an especial mistake in agriculture: for there *is* a certain class colouring perceptible in farming, as in other professions, and tenant-farmers may be safely spoken of as a worthy and well-conditioned body of men. If, as is ludicrously feared, a general prevalence of the lease should substitute for the homely and neighbourly class with whom in English country districts one has so long enjoyably associated, a



set of energetic, ruthless, restless, money-making "sharps," the change would be lamentable indeed; but the fear is ludicrous. However many new men may be entering agriculture from other walks of life, it will always be found that the bulk of farmers have been bred by farmers. And it is, we believe, an easier and a better thing to engraft upon the characteristic good qualities of the class, or rather (for they already exist) to foster there the intelligence and enterprise and energy of commercial life, by adopting more generally a commercial view of the relations between landlord and tenant, than it would be to engraft a strict valuation and acknowledgment of tenant-right upon the system of tenancy at will.

We give the form of a lease which we think might be altered to suit most properties. In using these articles, it is advisable to have them in a printed form. The necessary particulars for each farm may be inserted at the end when the contract is entered into. Should it be thought advisable, in any particular case, to modify some of the stipulations that may not be altogether applicable, it will be sufficient to note the changes or qualifications in writing on the margin of the printed instrument; and, by the written matter being properly attested, the deed may be legally completed. And if the landlord and tenant agree that certain specified fields shall be left at the termination of the lease under particular crops, then the numbers, names,

and contents of these enclosures, may be stated on the back of the agreement. By adopting such a course as this, many misunderstandings may be avoided in future years.

## ARTICLES OF LET OF FARMS

ON

THE ESTATE OF

*In the county of*

Belonging to

I. The entry to the ploughable land shall be at \_\_\_\_\_, and to the houses, yards, and pasturage, at \_\_\_\_\_ thereafter.

II. The tenants shall reside on their farms; and assignees and sub-tenants, legal or conventional, without the written consent of the proprietor, are excluded.

III. The rents shall be paid at the mansion-house, or some other equally convenient place, and that at two terms in the year, \_\_\_\_\_ and \_\_\_\_\_, by equal portions. The tenants shall also pay the usual taxes and public burdens.

IV. Within six months of the time of the entry of the tenants to the farms, the lessor shall put the farm-houses and homesteads in a satisfactory state of repair, according to the special agreements that may be entered into in regard thereto; and by their acknowledging to have received them in this condition—which they shall be presumed to do, if no

written objection is made—the tenants shall be bound to keep them in a similar state during the period of their occupancy. At the close of the leases, the out-going tenants shall leave the whole house erections in a tenantable condition, otherwise they shall be at the expense of putting them into good order.

V. To decide on all matters relating to house-repairs, compensations, valuations, and questions of farm practice, the sworn appraisers on the estate, who are chosen every three years, one by the proprietor, and another by the majority of the tenants, are hereby constituted the sole judges and referees. In all cases, the awards pronounced by the appraisers, or their umpire, shall be binding on both parties; and, until final decisions are come to, the tenants shall not retain any part of their rents in respect of any unadjusted claim for compensation.

VI. During the currency of the leases, the tenants shall cultivate and manage their farms according to the generally recognized rules of good husbandry, keeping their land at all times free from weeds, and in a high state of fertility. Should it be proved, on the evidence of the appraisers, and other credible witnesses, possessed of practical knowledge in agriculture, that the farms are mismanaged in such a way as to be deteriorated in value, then the proprietor, after giving three months' warning to the defaulting tenants, and allowing them time to make explanations, shall, if the ap-

praisers are still dissatisfied, have the power of putting the following stipulations in force:—*1st*, The farms shall thereafter be strictly managed on a four years' shift; *2nd*, Two cereal crops shall not be grown in succession; *3rd*, No straw, turnips, nor mangolds, to be sold off the farms; *4th*, Purchased manures, to the extent of ten shillings for each acre of arable land contained in the farms, shall annually be used till the close of the leases, or till it is found safe to relax these obligations.

VII. The tenants shall be bound, during the last four years of their leases, if these are not renewed, to manage their farms according to a four course rotation of cropping, having annually one-fourth thereof in turnip, mangold wurzel, potato, or other cleansing green crop; two-fourths in corn or pulse-crops, and one-fourth in clover or grass. For all lime and undissolved bones that may, with the proprietor's sanction, be applied to the land during the last four years of the leases, the following payments shall be made by the lessor, or in-coming tenants:—For expenditure during last year, four-fifths of the purchase price (exclusive, in all cases, of cartages); for that during the previous year, one-half; for that of the third year, from the close, one-third; and for that of the fourth year, one-fourth of the cost price. For all purchased stall or stable manures used on the farms at the close of the leases, and from which only one crop has been received, one-half the price shall be allowed to the out-going tenants; and for

similar manures, from which two crops have been reaped, one-fourth the cost thereof. And for all oil-cake, and other equally valuable bought feeding stuffs, used during the last year of the leases, the away-going tenants shall be repaid one-third the market price: But they shall be required to give satisfactory evidence, by vouchers or otherwise, of the purchase and use of such manures or feeding materials; and, during the last year, the quantities must not be greater than those used for three years previously. In all these cases, the "last year" shall be held to end with the term at which the tenants cease to have right to the arable land.

VIII. Power is reserved to the proprietor, to drain annually, to his own or his agent's satisfaction, at least one-tenth part of all farms requiring to be drained, which extend to one hundred acres or upwards, and one-twelfth part of all farms which are of a less size. Besides carting all the materials, the tenants shall be bound to pay an additional yearly rent, beginning on the first day of the first calendar month after the works are completed, amounting to five per cent. on the money so expended; and they shall further be bound regularly to clear the discharging outfalls of the drains from all vegetable or other obstructions.

IX. When the tenants enter to the farms, the hedges, fences, and gates on sides of public and parish roads, shall be put in such a state of repair by the proprietor's hedgers or out-going tenants, as



the principal hedger may deem necessary to make them fencible ; and thereafter they shall be kept up at the mutual expense of the lessor and lessees, the whole operations thereon to be under the direction of the head-hedger on the estate for the time being, whose certified accounts of the proportion of the expense payable by the tenants, shall be held as sufficient authority for charging the same against them, at the first rent collection after the expense has been incurred. The proportion of the expense of repairs payable by the tenants, shall be one-half the cost of labour and material. All the interior and sub-division hedges and fences, shall be kept up by and at the sole expense of the tenants ; and, by getting them in good repair, they shall be bound to keep them in a similar state, during the whole term of their occupancy, and leave them in the same condition at the termination thereof.

X. The proprietor reserves right of access to his woods and plantations, with power to prune, cut, and remove any trees that may be growing on the lands ; and the tenants shall be responsible to the proprietor for any damage done to growing woods or trees, by themselves, their families, or cottars ; and, under breach of this regulation, they shall not allow cattle, sheep, goats, or stock of any kind, to stray in the enclosed plantations, or do injury to any of the trees. No damages shall be allowed to the tenants, if the customary access roads are adhered to, when cartages are being performed in

connection with the plantations; but, if the adjoining land is roaded, or injured in any way, by such cartages, compensation shall be allowed to the tenants.

XI. The tenants shall not sell any straw off the farm, without purchasing manure of equal value in its place; neither shall they dispose of or remove from the farms, any of the manure which may be made upon them. Without permission, in writing, from the lessor, the tenants shall not grow turnip, rape, or mangold wurzel seed, during the last four years of their occupation.

XII. The outgoing tenants shall be careful to work the fallow and green cropping breaks of the last year of their occupancy, in a skilful manner, to the satisfaction of the resident Agent on the property; and for this, and for manures and seed wheat, they shall be paid by the incoming tenants, according to the award of the appraisers. The away-going tenants shall also be bound to sow, along with the last corn crop of their leases following a green crop or fallow break, a proper quantity and quality of mixed grass and clover seeds; and to harrow and roll in the same in a suitable manner, without remuneration for the labour. They must further preserve the young grass from being hurt or pastured by live stock or otherwise, during or after harvest; and, in that event, and should the roots of the plants give evidence, in the spring, that the seeds have been of the proper kinds, these

shall be paid for by the proprietor or in-coming tenant, on receipted accounts being produced therefor.

XIII. All the payments made, in terms of these articles, to the outgoing tenants, for unexhausted manures, straw, fallow working and seeding, grass seeds, or other usual awaygoing settlements, shall either be directly paid by the in-coming tenants, or, according to arrangement, repaid to the landlord, if the amount has been laid out by him.

XIV. The proprietor reserves power to resume possession of the subjects let, in case the tenants shall become bankrupt, or shall execute trust conveyances of their leases, or crops, or stocking, for behoof of their creditors; or shall allow sequestration, to the extent of one year's rent, to be awarded against them; and the proprietor, in any of these events, may resume possession of the subjects let, at the first term thereafter. Should a tenant, when removed under any of the cases fore-said, have more than a fourth of the farm under cereal crops, the proprietor shall be entitled to an additional rent of £2 for every acre more than the fourth part of the farm which is under such crop.

XV. The right to resume possession of any part of the lands, for the purpose of feuing, building, planting, enclosing, or for other improvements, is reserved to the proprietor; also power to straight marches and excamb lands, either with any of his own farms, or with any neighbouring proprietor;

the tenant receiving compensation for the ground taken, or paying for the ground added to their farms by any of these undertakings.

XVI. The proprietor reserves all sand, gravel, stone, limestone, coal, and other minerals in the lands, with power to search for, work, and remove the same, and to occupy such grounds, and erect such workmen's houses and buildings as may be necessary for working, calcining, or manufacturing the minerals, or for making roads and railways to facilitate their transport to market or elsewhere; but the ground so taken shall be paid for, according to the award of the sworn appraisers of the property.

XVII. Power is reserved, in the option of the proprietor, to insure against fire the whole dwelling-houses and farm buildings on the lands, to their full value; the tenants being bound to repay him the annual expense of the insurance at the first rent collection after its disbursement.

XVIII. The right to kill game on the farms is reserved to the lessor. If the lessees agree to leave a fair proportion of game for the proprietor's use and enjoyment, they shall have the joint right of shooting over their farms; if it is found that it is their intention to extirpate the game, this right shall be wholly withdrawn.

XIX. The tenants shall not keep an inn, nor sell spirits, or other exciseable liquors; nor shall they engage as common carriers or carters in hired work

off their farms, unless the written consent of the lessor is received.

XX. Should the tenants manage or crop the lands contrary to the regulations prescribed in Articles VI. and VII. hereof, they shall pay to the proprietor an additional rent of £1 for each acre, or part of an acre, so managed or cropped. In the event of a breach of Article XI., the lessees shall pay at the rate of £1 for every ton of straw or dung sold contrary to the stipulations therein; and for every acre of turnip, rape, or mangold wurzel seed grown during the last four years of the leases, an extra rent of £3 per acre shall be exigible. It is further declared, that these payments are not penal, but pactional rents, payable at the next rent collection.

XXI. In case the tenants conceive that they have any legal claim against the lessor for implement of the conditions of their leases, they shall be bound, within ten days after the 31st day of December in each year, to state specifically, in writing, to the proprietor or his agent, the nature of such claims for the year then ended.

XXII. On the separation from the ground of the last crop of a tenant in the year of his removal, the sworn appraisers shall inspect the condition of the farm in respect to the fulfilment of the foregoing conditions; and should they report that these conditions have not been fulfilled, and that the farm has been deteriorated in consequence, the amount of



such deterioration shall be fixed by them, and their award shall be binding on both parties. This rule shall be applicable, in all respects, to the case of the removal of a tenant under Article XIV. hereof.

XXIII. The lessees shall be bound to remove from the houses, and other subjects let, at the expiry of their leases, without warning; and, in case they continue to possess after that period without a new agreement, they shall respectively pay double the stipulated rent until they do remove.

XXIV. All questions arising between the outgoing and in-coming tenants regarding these Articles, shall be referred to the proprietor or his agent, whose decision shall be final. Any disputes which may arise between the lessor and lessees, as to the fulfilment of the terms of these presents, and which may not be cognizable by the appointed appraisers, shall be referred to arbiters, mutually chosen by the proprietor and tenants; and, in the event of said arbiters failing to agree, the decision shall devolve on an oversman, whose award shall be final.

The above constitutes the printed part of the agreement; and then follows a written statement in regard to the particular subject let, the annual rent, the endurance of the lease, and any other special stipulation that may be agreed on. This being signed by both parties, full effect is given to the printed and written matter. The following form

for the latter may be altered to suit the circumstances of the case :—

An agreement, made the                      day of                      ,  
 one thousand eight hundred and                      , between  
 A—— B——, proprietor of the estate of                      ,  
 on the one part, and C—— D——, of                      ,  
 farmer, on the other part, whereby, in consideration  
 of the rent after stated, the said A—— B—— doth,  
 in terms of the foregoing Articles of Let of his  
 estate, demise and let unto the said C—— D——,  
 for a period of                      years, from  
 eighteen hundred and                      , the farm of                      ,  
 situated in the parish of                      ; and the said  
 C—— D——, also in terms of the aforesaid printed  
 Articles of Let, doth hereby agree to pay annually,  
 as the rent of said farm so demised, the sum of  
                     pounds. And both parties warrant  
 to each other, against all deadly, the lease now  
 entered into, on these printed and written stipu-  
 lations. IN WITNESS WHEREOF they have hereunto  
 set their hands and seals, the day and year first above  
 written.

Signed, sealed, and delivered by the said

A—— B——, in the presence of

Signed, sealed, and delivered by the said

C—— D——, in the presence of

Although this form of lease will not suit every case, it is nevertheless capable of being altered to answer most properties. It may seem somewhat

long; but a separate examination of the various articles will show that it cannot be made much shorter, unless its terms are wholly altered. By some it will be thought too liberal in its terms; while others will think it too stringent. To those who criticise it in these aspects, we may say that it is intended to be both liberal and strict—liberal to the deserving tenant, and strict to the undeserving one; and, to make it as liberal as can possibly be desired, it is only necessary to give a back letter to the tenant, relaxing any of the stipulations that may be thought too strict.

## FORM OF LEASE FOR GRASS LANDS IN A MOUNTAIN DISTRICT.

*Conditions for letting Farms in the Manors of Alston Moor, and Ayle and Whitlow, belonging to the Commissioners of Greenwich Hospital.*

The Farm of

containing

Acres, or thereabouts,

to be taken for the term of

Years, commencing at May-day, 186 , at the  
Yearly Rent of Pounds,

payable half-yearly, at the usual terms. The Tenant to pay all Cesses and Taxes; the Land-tax and the Landlords' portion of the Property-tax excepted.

The Land to be kept in Grass. If any part of it

is taken into cultivation it must be by special permission of the Hospital's Receiver, and subject to such conditions of cropping as he shall prescribe.

The Buildings, Gates, Ditches, and Watercourses to be kept during the term, and left at the end thereof, in good tenantable repair by the Tenant (the Roofs, Walls, and Main Timbers of the Buildings excepted), who shall pay Annual Interest at the rate of 5 per cent. for all outlay for Draining incurred by the Lessors, and for all Buildings or other permanent improvements which have not been stipulated for at the taking of the Farm.

The Tenant not to transfer or sublet any part of the Premises without leave in writing from the Hospital's Receiver; nor to sell any Hay, Straw, or Manure from the Premises, but to use and apply the same to the Meadow Lands in the most beneficial and approved manner; and to leave that which is made in the last year of the term for the use of the succeeding Tenant.

All the Hay or Meadow Land to be kept hained and uneaten from and after the 30th day of December preceding the end of the term, and the succeeding Tenant to be allowed to enter upon it for the purpose of manuring, or otherwise dressing it, from that period.

No greater number of Stints to be kept upon the Premises during any part of the last year of the term than have been usually kept in former years during the lease.

The Lessors to have the right to work Minerals in the usual manner, and to fence off and plant certain portions of land at any time during the lease, allowing the Tenant for the same the average rent per Acre of the in field Land of the said Farm, together with the Rates and Taxes to which such rent is liable.

If the above rent and stipulations are not duly paid and observed, this agreement to be void and of no effect, and the Lessors to re-enter and re-let the said Premises, reserving power also to distrain for rent due and sue for breach of agreement.

do hereby agree to take the said Farm on the foregoing conditions, and agree upon request of the said Commissioners, their Receiver, or Solicitor, to execute a Lease thereof agreeably thereto, which Lease shall also contain all such reservations of Timber, Minerals, and Game, and such Covenants, Conditions, and Penalties as are usually contained in Leases of Farms belonging to the said Commissioners, and to pay the Stamp Duty chargeable upon the said Lease.

As Witness	hand , this	day
of	One Thousand Eight	
Hundred and Sixty	.	

Witness to the }  
 Signing hereof }



There is nothing more deserving of remark, says Mr. Grainger, than the superior advantages enjoyed by tenants entering upon farms in Scotland, and some parts of the north of England, over those in a similar situation in the south, or in some of the Midland districts. In the former, he has nothing to pay for on taking possession, but is enabled to lay out his capital to the best advantage in stocking his farm, and afterwards conducting it upon an improved system; whilst, in the latter he is, in the first instance, frequently crippled as to pecuniary resources, by being obliged to pay a heavy valuation on entering, and does not, in consequence, afterwards possess the means of making those improvements, from which he might derive the greatest advantage. Thus, in the former, a farm may be stocked, and conducted more profitably to the occupier, with little more than half the money that is required in the latter. In many counties in England, a farmer entering upon two hundred acres of land, with a capital of £1500, has to pay, according to the custom of the place, £1200 upon a valuation and for stock, leaving him only £300 to carry on the business; whilst in the North, and in Scotland, a farmer may enter upon the same quantity of land, having no valuation to pay, with only £800, and, after stocking his farm to the best advantage, have the same sum left that the other has, but with much better opportunities of employing it profitably. It is these advantages enjoyed by a tenant, com-

bined with his having an interest in the soil for a certain number of years, and the superior management of the land, that render estates in Scotland so much more valuable than in England, the rents in the former being nearly double what they are in the latter. It is true that in Scotland the tenants do not pay such heavy rates; but, after deducting for this, the rents would then be higher by five shillings an acre than they are in England; and under the Scots' system a farmer would derive a greater advantage from paying an additional five shillings per acre, than he could by entering upon a farm subject to a valuation, even at a deduction of five shillings per acre, thus making a difference per acre of no less than ten shillings.

The superiority, indeed, of the free-entering system over the practice of valuation is so evident, that little is required to prove it except the mere statement of the facts. It is quite clear that a farmer, on entering upon a farm, stands in the most need of having the full and unincumbered use of his capital, in order, in the first place, that he may be enabled to stock his land at the lowest rate for ready money; and in the next, that he may have a sufficient sum left to meet contingent demands, until he can obtain returns, and to allow of his taking advantage of the turns of the market. Wherever he is obliged, by the custom of the country, to take various articles, and to pay for

workmanship and labour at a valuation, he frequently, indeed most commonly (not being immediately in want), pays more for them than they are worth, or a higher price than he could obtain them for in the markets, or in the usual course of business, for ready money, and at a greater rate for labour and workmanship than that at which he himself could have them performed; whilst, in every case of this description, the greater part of his capital is locked up at a time when he most wants the use of it: he commences business, in consequence, in a state of embarrassment; and, unless some unusually fortunate circumstances occur, he cannot recover himself; nor has he the means of making those improvements from which he might derive advantageous returns, because he does not possess capital sufficient to enable him to make the requisite outlay, and to wait a certain time for the result. It is true that, in lieu of the cash he has paid, he is in possession of a certain quantum of property; but that property is, too generally, not available when he is most in need of money (some of it not at all); and not unfrequently he is compelled to sell it at different terms at a loss, by which a portion of his capital is literally sacrificed, and his embarrassments still further increased.

It may be said that he has the benefit of this practice when he quits his farm; but this is, in truth, only perpetuating a bad system, under which

the land can never be properly improved, or made to grow what it is capable of producing. To this it may, in a great measure, be attributed, that so large a proportion of the soil in England lies in a neglected state, or is not cultivated under a proper rotation, or rendered efficiently productive. It is true that many of these evils may be traced to a cause we before stated,—the not giving a tenant a sufficient interest in the land by means of a lease, to render it of any advantage to him to speculate in improvements ; much, also, in some cases, must be ascribed to the ignorance or prejudice of occupiers of the land ; but, perhaps, the greatest of all evils is that to which we have just alluded, namely, the compulsory system of valuation, because that either prevents farmers of spirit, experience, or knowledge of the subject, from taking farms which there is no doubt they would greatly improve, and in so doing set an example in their respective neighbourhoods, which might be highly and generally beneficial ; or, if they do enter upon land under such a custom, it incapacitates them from making those improvements which they wish and are inclined to make, and which would be in the same degree advantageous.

If it is urged, that, in specifying a grievance, some remedy ought also to be pointed out ; the answer is, that it rests entirely with the landlords, who have the power and the means, as the farms on their estates fall out of lease, or out of occupation

to make what regulations they please as to the letting of their land. It must be obvious that, if any advantage is to be given to either tenant, it ought rather to be to the in-comer than to the out-goer, as the less money the former has to sink upon entering into the occupation of a farm, the more he has remaining in his possession to lay out in improvements: thus not merely obtaining a profit to himself, but rendering the soil more productive, and consequently more valuable; and in this way increasing the income of the landlord. The inducing a tenant to lay out money in improvements is so obvious a mode of augmenting the value of an estate, that it may be matter for surprise that it is so frequently not thought of, or neglected. If he only holds from year to year, he will, of course, only provide, according to an old saying, from hand to mouth: he can gain nothing by making improvements, and, therefore none that are lasting or permanently advantageous will be made; but if he has a lease for fourteen or twenty-one years, then he may be enabled to obtain an adequate return for money laid out in improvements, which will naturally induce him to make them, and at the expiration of the term the land will be found in much better condition, and be in a much higher degree augmented in value, than that which was only held from year to year, at the end of a similar number of years.



Undoubtedly, as a general proposition, the most desirable practice of tenancy is, that through which all unpleasantness or misunderstanding between the landlord and tenant, or the incoming and outgoing tenants, is avoided; each party, to a certain extent, being at liberty to make arrangements, and exert themselves, with a view respectively to their own interest; and by means of which, also, an incoming tenant may enter a farm with the full benefit of all his capital, so that he may employ it to the best advantage; it being likewise essentially necessary that the latter should enter into possession at such a period of the year that he may be enabled to sow his crops at a proper season.

No business requires in a greater degree the free use of the capital appropriated to it than that of farming, and especially at the outset, when it is most essential that the farmer should possess the means of taking advantage of any bargain that may offer, as, indeed, in every business entered into for the purpose of living by it, the free use of capital at such a period is indispensable. The evils, therefore, which it is wished to remove, and which are, at this moment, in many counties very prevalent, are those customs at entry, the effect of which is to deprive a farmer of nearly the whole or of the greater part of his capital, and thus frequently to cause his ruin the first year of his commencing business; and those, which, through the not allowing an incoming tenant the requisite privi-

leges, prevent him from sowing his corn in due season.

When a person entering upon a farm is thus deprived of his capital, through being compelled, by custom, to pay a heavy valuation, he, of course, expects to receive, in a similar proportion, when he quits, from his successor ; and in this way the evil is perpetuated. But were the landlord to alter the system, in order to give the new tenant a free entry, and the free use of his capital, such a course would, most assuredly, combined with the bestowing upon the new occupier a sufficient interest in the soil, by means of a lease, ultimately, and in truth speedily, tend most essentially to the advantage of the landholder, as well as of his tenants. No farmer, of course, enters into business with a view of being bereft of his capital ; but on the contrary, with the hope of obtaining a comfortable subsistence for his family and himself, and of bettering his situation ; and it is too obvious to be for a moment doubted, that it is much more easy for him to do so by having money at his command, to enable him to take advantage of the markets, than by being deprived of his capital, and having only times and seasons to trust to. In the latter case, indeed, what little capital he has left to commence with, is, in general, lost ; as being unable, through the want of means, either to make improvements, or to keep the land so stocked, or in such a condition, as would secure him some return, he can-

not, when he quits, obtain an amount of valuation adequate to his outlay at entry; and thus a portion of his capital is literally sacrificed, whilst the land, instead of being improved, is deteriorated. It is, therefore, equally for the advantage of both landlord and tenant, that this system of taking capital from the latter should not be continued; and also that the incoming and outgoing tenants should have respectively an equipoised interest, without being under any necessity of interfering with each other when the change of tenancy takes place.

Were the following practice generally adopted, it is presumed that a beneficial alteration might be effected.

It may be premised, that there is but one method by means of which a landed proprietor can have his land in proper condition; namely, by letting it subject to certain restrictions, which require a regular course of husbandry to be strictly pursued.

Restrictions are equally as favourable to the tenant as to the landlord, when imposed with a due consideration of their respective interests; and the more the true nature of those interests is studied at the outset, the greater the mutual benefit that is likely to be derived. On the other hand, where the advantage is given to the tenant at the expiration of his term, he alone is benefited, but not nearly in that proportion that he might have been, had his interest, conjointly with that of the landlord, been

properly considered at the commencement of that term.

The various times for entering upon farms, and the different customs attendant, as it were, upon each of them, are seen in the respective counties in which they are in use, or prevail. It will also be seen, that with regard to many of them, the interest of the incoming tenant is greatly neglected or sacrificed. What is really wished for is a mutual advantage, which can only be obtained by requiring a regular course of husbandry, and allowing an incoming tenant the free use of his capital to go on with it; but a course of husbandry beneficial to both parties cannot be adopted, unless a proportion of the land is annually sown with clover, or other grass seeds, the phrase "green crop" including so many kinds, that the land is, in consequence of its being frequently used in a way never intended, run out of condition, and much impoverished.

The practice of tenancy about to be proposed would, it is conceived, fairly combine the interests of the landlord and tenant, and be found equally beneficial for the taking as well as the letting of a farm; looking, in the first place, to the lease, and its suggested conditions, for the advantage of the landlord; and, in the next, to the arrangements between the incoming and outgoing tenants, for the benefit of the tenant.

In the first place, let it be supposed that A lets a

farm to B for the term of fourteen or twenty-one years, commencing at Lady-day, but granting the privilege of entering upon the land at Candlemas, to begin ploughing for the spring crop and fallows, and freeing the seeds and pasture of cattle at the same period; and also containing these conditions, namely, that all the hay and straw is to be used upon the premises, and the dung to be left for the benefit of the land during, and at the expiration of, the term; that made in the course of the last half year being left in the yards, that the incoming tenant may apply it wherever he thinks it will be most beneficial to himself; that B, when he quits, is to leave the same advantages that he received when he entered; that the farm is to be worked on the four-field system, viz., a fourth for wheat, the same proportion for seeds, one-fourth for turnips, or fallow, and a fourth for spring corn: or where the soil is good corn land, a third for wheat, the same proportion for seeds and turnips, or fallow, equally divided, and one-third for spring corn, including a quantity of beans, peas, or tares, sufficient together with the seeds, to take up a third of the land; that two white crops should never be taken successively, nor more than two white crops for a fallow, and the land to be once dressed; and that all the meadow ground cut for hay should be dressed every three years.

With regard to the quantity of draining, hedging, and ditching, restrictions are, undoubtedly, highly necessary, but their nature and extent must, of



course, entirely depend upon the situation and quality of the land. It should, therefore, be decided upon at the time of entry, how much ought to be done annually, and at whose expense, in order that stipulations to that effect may be inserted in the lease. The same may be said with reference to the repairs of the buildings.

These advantages to the landlord require no explanation, as the tenant being bound to sow a certain proportion of the farm every year with seeds, to have another proportion with green crop, and it being stipulated that the corn crops are not to exceed a specified number of acres, the land cannot easily get out of condition.

In order, in the next place, to show the advantages which it is presumed might be derived from the arrangements here suggested between the outgoing and incoming tenants, let it be supposed that B gives up the farm at Lady-day, and that C takes it under the same stipulations as his predecessor.

C enters at Candlemas to commence ploughing for and sowing the spring crop, and working the fallows, and takes possession of the seeds and pasture land at the same time, together with a part of the house and stable-room for his horses, but the outbuildings and the remaining portion of the house are retained by B until May-day following, for the purpose of making use of the hay and straw, and completing the threshing then on hand; and for B's portion of the wheat crop which he leaves in

the ground, sufficient barn-room is provided at harvest time, which he threshes on the premises, leaving the straw for his successor, free of expense.

C pays to B the value of seed and labour for the clover, or other grass seeds upon the ground, and claims a portion of the wheat crop, he paying rent and taxes from the time of his entering until Michaelmas for the ground it grew upon; and his portion being one-third of the crop if the land was fallowed for wheat, and half of it if sown after any other crop; he also has the benefit of all the dung left upon the premises, without paying for it any pecuniary consideration, and he finds remaining in the yards all the dung made during the last half year, as stipulated in the lease.

C, entering at Candlemas, has time to plough his land for the Lent corn, and sow it in proper season, from which he obtains a return in six months; and by his taking possession of the seeds and pasture at the same time, the herbage is prevented from being diminished or injured by late feeding; and B being restricted from sowing more than a stated proportion of the arable land with wheat, C finds as many acres for a crop of Lent corn, and the farm in as regular a course of husbandry as if having held it for several years; but if the wheat season does exceed the stated proportion, C claims the quantity sown over and above the stipulation, without making any kind of remuneration for the crop; whereas this restriction being omitted, a leaving tenant sows all

the land he possibly can for his last wheat crop, which not only diminishes the quantity of land, properly speaking, intended for his successor's spring crop, but prevents him from having the farm in a regular course for several years, besides greatly impoverishing the land. It besides affords him the opportunity of rolling, sweeping, repairing the fences, or performing any other requisite labour which the pastures may require; whilst a tenant who is not allowed the privilege of entry before Lady-day, although the custom of the county may give him the right of sowing and ploughing for the spring crop, is put to great inconvenience, and cannot possibly have his land ploughed and sown, and his other necessary work done, in any reasonable time, arising from the outgoing tenant having the option of allowing his successor to enter before Lady-day or not, though the former cannot make use of the land, he being prevented by the same custom from sowing the spring crop, and thus he is in possession of a privilege which cannot benefit himself, but is highly injurious to the incomer; this is grievously felt in many counties; and where the outgoer is allowed to sow the spring crop before he gives up possession at Lady-day, the case is still worse for the incomer, the latter being thus prevented from having any corn at all for eighteen months.

C is charged for nothing but the clover or grass seeds upon the ground, as in consequence of paying

rent and taxes for six months on the wheat crop, he claims a portion of it, and B having an interest in the last crop as well as in the preceding ones during the term of the lease, is of course induced to farm the land for that, equally as well as for the others; for although he leaves all the dung for the benefit of C, yet he is not a loser, he having had the same advantages when he himself entered: the reason for its being necessary that the dung made during the last half year should be left in the yards, is, that B having an interest in the last crop, he, if he was not tied down to leave the dung in the yards, would top dress the green wheat in the winter with it, and thus deprive C of manure which is essentially requisite for his turnip or wheat crops the ensuing year; such a practice being very prevalent where this restriction is not enforced.

C, likewise, has no hay or straw to take at entry, B being bound to feed and use it on the premises by May-day, nor any fallows to pay for, he being allowed, under the proposed arrangement, to enter in sufficient time to make his own.

The period of entry in this suggested practice is productive of very great advantages; the crop being sown in good time, and there being a quicker return, than by means of entering at any other period. A Michaelmas entry affords no return for twelve months; a still longer delay ensues from one at May-day or Midsummer; and from a Lady-day entry, where the outgoer has the option of sowing

the spring crop, a delay of no less than a year and a half; but with the privilege of entering at Candlemas, the greatest advantages, as already stated, are derived from a Lady-day entry, the delay being only six months, it allowing the incoming tenant the free use of his capital, preventing any unpleasantness between him and the outgoer, they having no favours to ask of, nor being in any way under obligation to each other, and giving them a joint interest, the land is thus kept in good condition, the incomer being enabled and encouraged to make profitable improvements.

Having a few pages back made some remarks on the Irish population, we may here add that the flax question is now assuming large proportions in Ireland, and that the inhabitants are gradually becoming more and more alive to the importance of the subject. Since the civil war commenced in America, and there was a consequent decline in the supply of cotton, it was but natural that other materials should come into greater demand. The cultivation of flax thus began to occupy more attention, and year by year a greater breadth of land has been brought under the flax movement, as will be seen from the following statement. In the ten years ending 1855 the number of acres under flax in Ireland averaged 80,000. In 1862, according to an official report furnished to Sir Robert Peel, there were 150,000 acres under cultivation. In 1863 the number had increased to 214,099, an increase of



61,099; and in 1864 the number of acres had risen to 301,860, or 87,761 acres more than in the previous year—an increase arising chiefly from the depression in the cotton trade consequent on the American War. Now the question to be considered is, whether this great extension of flax cultivation will conduce to the ultimate benefit of the country; and upon this point there appears to be some difference of opinion. In the north of Ireland it is well-known that flax has always been considered one of the staple products. The county of Down has lately taken the lead, having, of course, the flourishing town of Belfast as an emporium of trade. Now, in 1863 no less than 44,963 acres were devoted to flax, Tyrone standing next in order with 32,007 acres. In 1864 this quantity had increased to 59,137 acres in Down, and in Tyrone 41,318 acres; the other counties in the north all increased in a like ratio, so that in 1864, of the whole quantity in Ireland, the province of Ulster contributed 278,272 acres, or about eleven-twelfths of all the flax in the country. The cultivation has extended in the other provinces, and there is also a strong attempt to establish factories in other parts, which might in time rival the great establishments in Belfast. This movement has by many been considered as an indication of a prosperous condition generally, but there are others who take a different view; and Mr. Armitage Moore, in an address delivered to the tenants on the Annesley Estate, made use of very

strong language on the subject, characterising it as a broken reed ; that the extension of the growth as at present carried on, may be almost called agricultural gambling ; adding, that “ Many men have told him they have been ruined by flax ; and it is a singular fact that in one of the most extensive flax-growing districts in this county, there are more tenants in arrears than in a locality where on 10,000 acres there are not five acres of flax.” Such statements as these ought to have the effect of producing caution in extending the growth of this plant, for it is evident that it is only under certain conditions that it can be cultivated at any advantage to the grower, and if these be not attended to, the results may prove really disastrous. There can be no doubt that flax may be made to occupy a legitimate position in the rotation of crops, but experience has shown that in this it can only be introduced once in seven years at least. If confined to this, it may prove a very profitable crop ; but when it has been sown in the third or fourth year on the same land, the consequence has been, not only an exhaustion of the soil, but a very inferior quality of the flax : for, according to one authority, “ It may be taken as a general rule that unless on exceptional lands, favoured by exceptional seasons and prices, a four or five years’ course will be utterly unprofitable.” As this is the result of experience, it behoves those who may wish to extend the flax cultivation to take warning in time,

and not attempt a system which has been proved to be not only erroneous but ruinous. If this applies to Ireland, it does so equally to England, where, during the last autumn, at many of the agricultural meetings, it was broadly recommended that flax should be introduced into the rotation. If the suggestion should be followed out, the caution against its too frequent repetition on the same land cannot be too strongly made. Under any circumstances, for some time at least, it is probable that there will be an increasing demand for it, which is enough to stimulate its growth. The warnings thus based on the experience of Ireland ought to be attended to here, and then there need be no fear but that, properly undertaken, it will prove a very profitable crop.

## TITHE COMMUTATION.

*Average value of Tithe Rentcharge of £100 for previous seven years to Christmas, and Return of the Septennial prices of each kind of Grain per bushel, as prepared for the Tithe Commissioners in each year, from 1860 to 1866.*

Seven Years ended.	Value of Rentcharge.			Wheat per Bushel.		Barley per Bushel.		Oats per Bushel.	
	£	s.	d.	s.	d.	s.	d.	s.	d.
1860 ..	110	17	8 $\frac{1}{2}$	7	4 $\frac{1}{2}$	4	6 $\frac{1}{2}$	3	1 $\frac{1}{4}$
1861 ..	112	3	4 $\frac{1}{4}$	7	4 $\frac{1}{2}$	4	7 $\frac{1}{2}$	3	2
1862 ..	109	13	6	7	0 $\frac{3}{4}$	4	7 $\frac{1}{2}$	3	1
1863 ..	107	5	2	6	8 $\frac{3}{4}$	4	7 $\frac{1}{2}$	3	0
1864 ..	103	3	10 $\frac{3}{4}$	6	3 $\frac{1}{2}$	4	5 $\frac{3}{4}$	2	11 $\frac{1}{4}$
1865 ..	98	15	10 $\frac{1}{2}$	6	0	4	3 $\frac{1}{2}$	2	10
1866 ..	96	11	4 $\frac{3}{4}$	5	11 $\frac{1}{2}$	4	2 $\frac{1}{4}$	2	9 $\frac{1}{2}$

Tithes are the tenth part of produce from the land that has been appropriated from the earliest ages to sacred purposes, in the maintenance of the clergy, and upholding religious establishments. The arrangement has passed through many shapes and forms, and the valuation and collection of the portion of produce has engendered much strife, and has produced many unpleasant collisions between the cultivator and the owner of the tithe. An unwillingness arises to give away any part of the increase that is obtained by labour and capital, and an inconvenience ever happens from drawing in kind the allotted part of the different articles of produce. These grumblings and collisions are now very much removed by the "Tithe Commutation Act," of a modern date, which changes all tithes from kind into a rent in money that is fixed by the average prices of grain for seven years past. A Government commission superintends the general arrangements, and the former complaints have been removed. The farmer is not subjected to any intrusions or interferences—the amount is fixed for him, and he knows his damage. The alteration has proved a very great benefit of the kind.

Referring to the condition of farming in Ireland, we learn that there has been a great decrease in the production of cereals, so that the exports of wheat, flour, barley, and oats have greatly fallen away. Their shipments show that the export of cattle from Waterford in 1862 was 34,629 head; and in 1865 it

had fallen to 10,622. It may be asked, what are the gentleman farmers and tenant farmers doing with their land? The export of sheep in 1862 was 36,660; in 1865 it was 31,901. There is a slight increase in the export of pigs and of butter; but with the facts before us, we may well say, what are you doing to ensure the progress of the country? The number of cattle exported from Ireland in 1863 was 399,264; in 1865 it was reduced to 232,652; of calves there was a reduction from 42,387 to 14,082; of sheep there was a decrease from 517,232 in 1863, to 332,831 in 1865. Mr. Thom estimates the value of live stock exported in 1863 at £8,562,219, and at his price those of 1865 were only £6,075,000, thus showing a decrease of nearly two millions and a half. The rural population of Ireland has within the past twenty years been lessened by two and a half millions, but the value of the agricultural produce has diminished in a greater ratio. With these facts, how can it be said that Ireland is progressing, or that agriculturalists are performing their functions? With regard to flax, the county of Waterford, with an area of nearly half a million of acres, had only 152 acres of flax, and that this year there were 24 acres less than in 1865; and that counties in Ulster were growing 20,000 and 30,000, and one even 50,000 acres. The solution is the want of labour. The province of Munster had an area of 6,067,721 acres, whilst Ulster had 5,479,384 acres, yet the population of Munster was 1,513,553 per-



sons, while that of Ulster was 1,914,553, being a difference of 400,000 persons. The population of Ulster exceeds that of Munster by 400,000, but the value of the agricultural produce of the former is greater by four millions; that is, about £10 per head, or £50 for each male adult. This proves that it is not the extent of land, but the amount of labour applied to land, which produces wealth. If Ireland is to be wealthy and prosperous, her people must apply more labour to the land, and they may depend upon it that their wealth and contentedness will largely increase.

Land Agents should ask, when applied to for a farm, not “How many acres do you want?” which is the common question, but “How much money have you?” Because, if the tenant has not at least £10 to £15 for every arable acre, it is quite impossible for him to farm, with any degree of success, in these times. In fact, to farm well, and to enable the tenant to bide his time, and buy cheap and sell dear, he should have about £6,000 for 500 acres, and if modern improvements are to be carried on vigorously, at least £7,000 would be needed. Farmers have, in general, too much land in proportion to their capital, and one of the crying evils of the day is, that they grasp a large quantity, instead of concentrating their capital on improvement within a smaller compass. It is thus that we see scattered over the country large tracts of unproductive land, which, under good cultivation, would yield valuable

crops. The great secret of success in farming is, to occupy only such an extent of land as can be well cultivated. It is sad to see the tenant of a farm too large for his means, pride himself on the number of acres which he possesses. Profits depend more on thoroughness and quality of cultivation than on the quantity of land put under tillage. A great deal of money is invested in but half-stocking the farm, and a very little employed in its cultivation. Such a man is like a merchant who has fitted up a roomy store, and gazes with complacency on his empty shelves. He has chalked out to himself a hard lot, and involuntarily enters into a state of servitude worse than Egyptian bondage. His work is never accomplished. He toils at all hours, and yet he is never ahead of his work, and his work is never well done. He has not time to accomplish anything thoroughly. His house is out of repair,—his cattle poor,—his barn dilapidated,—his fences in ruins,—his pastures overrun with bushes,—and acres of land, which, under proper cultivation, might be made to yield a rich harvest, are but little removed from barrenness, or perhaps covered with obnoxious plants. What a harassed, unhappy being, must be the occupier of such a farm! He has no time for recreation or mental improvement. He is doomed to the treadmill, with his spirits depressed, despondency stamped on his haggard lineaments, and the worm of discontent gnawing at his heart. For him

there are no pleasant associations with the past; the present is full of anxiety, care, and hard labour; and a cloud rests upon the future. It is always advisable, therefore, to suit the farm to the farmer, and the extent of its acres to the extent of his means, as the latent powers of the soil can only be secured by a proper application of skill, and a judicious expenditure of labour and capital.

Agents should be very particular in ascertaining that the holdings of the tenantry under their charge are not too extensive for their means. When found to be so, they ought to lose no time in reducing them to a size commensurate with the tenant's capital. Moreover, Agents should see to it that every tenant has got suitable buildings, and should bind the tenants to keep them in good and tenantable repair. For it is only common justice, if the landlord does his part, that the tenant should do his. Happily the landowners of this country, as a body, possess great judgment and patriotism, and are most worthy members of society. It is therefore not difficult for the Agent or Steward to obtain their consent to whatever is for the best interests of landlord and tenant. Bad advisers make bad landlords, and too often ruin the best tenantry and the best estates.

We are greatly in favour of landed proprietors riding a good deal across country. For apart from the healthy and invigorating exercise, he who rides to hounds gets an accurate knowledge of the agricultural state of his country, of the various systems.

of farming, and of the actual condition of stock, which he would never obtain by walking or driving along public roads in a lifetime. Moreover, he would get to learn the abilities and efficiency of tenant farmers, not only upon his own property, but upon other estates and other counties.

In addition to what has been already written upon the important subject of rotation of crops in our work on Farming, we may state that judicious cropping is that mode of management which is the most likely, for a series of years, to yield the greatest quantity of useful produce, at the smallest comparative expense and risk, from any given extent of land. The propriety of adopting any particular system of cropping will be considerably influenced by the following circumstances :—1st. The climate, whether it be wet, dry, warm, or cold; and the situation whether high or low. Wet climates and high situations, for instance, are rather favourable to the growth of oats; dry climates and low situations, to that of barley; 2nd. The soil; for sand, gravel, clay, chalk, peat, and loam, have various crops calculated for each respectively. 3rd. The situation of the farm, in regard to the facilities that may exist for disposing of any particular crops. In the neighbourhood of cities or large towns, potatoes, clover, hay, &c., may be of more value than those crops would be if far removed from such localities, though the introduction of railways gradually tends to equalise prices. 4th. The means that may exist for pro-

curing large quantities of manure at cheap rates, as stable dung, sea-weed, marl, lime, &c. Lastly, though by no means least in importance, the fitness of the soil for carrying particular crops.

The following rules should be kept in mind in deciding upon the order of the rotation of any crops :—

1. When commencing with land out of heart or condition, it is necessary to begin with such crops as are most likely *to produce manure*. Hence, barley ought to be avoided, as it produces but little straw when compared with other crops, and two exhausting crops must not follow in succession.

2. The crops should be so arranged that the labour of ploughing for each, and of sowing, weeding, reaping, &c., may proceed in a regular succession, by which the labour of cultivation is not too much crowded on the farmer at any one particular period of the year, nor extra stock required to perform the necessary operations, which may, if properly arranged, be all done with the same set of labourers, horses, &c., with the exception of hoeing in spring and summer, and harvesting.

3. All forcing or repetition of the same crop should be avoided, and two grain crops should never succeed each other. Such an arrangement should be made that by the grain crops a sufficient quantity of straw is provided as food and litter for cattle ; while, at the same time, a fair profit may be derived from the grain. By the green crops and



grass, a number of animals should be maintained in winter and summer, and, being well littered and well fed, a bulk of valuable manure will be obtained.

No first-class farmer will, however, bind himself to any fixed rotation of crops, but will rather be guided by locality, climate, quality of the land, prices, and the demand for particular crops, and other circumstances.

It is evident that there must be such a diversity regarding these points, that it is hardly possible to lay down any general rules that can be applied to all cases; and yet the system to be adopted by the farmer must, in a great measure, depend on a due consideration of these circumstances combined. In point of fact, it is by his attention to these circumstances that the good farmer is distinguished from the bad one.

It is scarcely possible to pass through a parish without perceiving that the same kind of soil is cultivated on as many different systems as there are farms; and it is very difficult to find two fields in which the system does not vary. Now, it is evident that some one of these systems must be preferable to the other; for even if twenty systems are practised on the same kind of soil, some *one* amongst them must be superior to the other *nineteen*. There is no class, the members of which place more entire reliance on their own skill than farmers; yet they who know them best will be the

most ready to admit that the greater number are far from having acquired a correct knowledge of their business ; and no one who is acquainted with the general agriculture of the country will say that it has yet approached to that degree of perfection of which it is susceptible. Some persons say that land must have rest ; but if they will divest themselves of those prejudices, originating in old customs, and consult the laws of nature, they will find that land does not require frequent and regular intervals of rest, like an animated being, or beast of burden, but that it is destined, through the skill and industry of man, to be able to bear, unimpaired, a perpetual course of cropping. Even in uncultivated fields, where the plants are permitted to grow, mature, and deposit their seed, there is a continual sameness ; but land, like the beast of burden, may be overpowered, by being worked beyond its strength ; yet, like a trusty and faithful servant, it is always grateful, and will make an ample return for whatever is bestowed upon it.

The Agent should see that the tenantry under his charge do not misuse straw. The subject of straw is one of much greater importance than is commonly imagined, and its value, taken in the aggregate, is so very great, that it is well entitled to more attention than hitherto has been bestowed upon it. Farmers are too apt to consider it as of little or no value, because it is not generally saleable, and it is rarely estimated separately from the

yearly produce of the soil. But, though it is not in general (except in the vicinity of towns) a marketable commodity, yet it is a material which, under proper modes of consumption, is necessary to preserve our tillage land from deterioration, and on which the amount of its future produce most essentially depends. Thatched buildings, moreover, lessen the quantity of dung upon a farm to such an extent that they ought to be universally prohibited.

A good deal has been said and written upon the interesting question of house accommodation for labourers; yet we think, with all submission to the opinions of gentlemen of acknowledged information, that it is altogether a landowner's, and not a farmer's question. It is, as we have just said, a very important question, and one which our landed proprietors are now happily taking up with much earnestness. If landlords were not rich, and if their properties were not extensive, we readily admit that they could not afford the outlay, however anxious they might be to build good cottages. It certainly is not a paying matter to build substantial, comfortable dwellings for this most valuable class of the people. Nevertheless, we believe it to be the duty of landowners to provide with decent habitations all the labourers who work on their estates. It has often been stated that the obstacle to cottage building is the fact that cottages breed "paupers." But who are the paupers? Are they

not the old worn-out labourers; the weak, the widowed, the orphan—it may be, the maimed; the human workers whom the toils and accidents of life have brought to this sad condition? They have done their day's work zealously and well: and now, when the evening has come, and they can work no longer, they have a natural right to that subsistence which it has been utterly impossible for them to lay up for themselves. They are of the "labour family," and therefore a burthen which is not unreasonable. We live, thank God, in a land and in an age in which the duties of property are as well defined by public opinion as its great privileges are cheerfully conceded by public consent. While maintaining that the erection of labourers' cottages is more a landlord's question than a farmer's, we are quite convinced that suitable dwellings for labouring families tend greatly to benefit the farmer, because they tend to the moral elevation of the labourer, and thus render him more valuable. A competent authority has given it as his opinion that if the comfort and the accommodation of the labourer and his family be the chief consideration, without any pretension to architectural display, a cottage with five rooms and the necessary outbuildings can be erected for about £100, and, if let at a fair rent, would realize  $2\frac{1}{2}$  per cent. annually, after deducting for ordinary repairs. Besides, all the cottages would not require three sleeping apartments; some might be built with

only two, and others, for couples without children, with only one, so that the average cost of erection might be reduced to £90: not a very heavy sum, truly.

That eminent authority, Mr. Bailey Denton, in his most instructive work, "Farm Homesteads of England," says that, reduced to figures, we shall find that three-bedroom cottages will cost from £130 to £150 each; those with two bedrooms from £90 to £130 each; and those with one bedroom only from £70 to £100. The mean return required to repay principal and interest in thirty years may be taken at £8 a year for the first, £6 12s. for the second, and £5 for the last description of cottage. With respect to the improvement and alteration of old cottages to meet the requirements of the present day, Lord Palmerston was of opinion "that it is not necessary to pull down old cottages to build new ones. A great deal can be done at a moderate cost in improving the old ones." At Broadlands his Lordship has personally superintended the enlargement and alteration of his old cottages, so as to render them free from those objections which are so repugnant to good feeling. Sufficient bedroom accommodation, good drainage, and ventilation, have been his primary objects; while the poor man's comfort has been studied by the substitution of boarded for stone or brick floors, and by the provision of those little conveniences, such as cupboards and shelves, which we all know how to appreciate



in our own houses. Moreover, cottages are easily ornamented at little or no expense. A variety of flowers and shrubs, which may be easily obtained, will answer this purpose—the China rose, the honeysuckle, and many other varieties which it is needless to mention. A Morella cherry-tree, at the north end of a cottage, has been known to pay the *whole* rent by the sale of its valuable fruit. A tree, or a few shrubs planted before the door, even, will cause the cottager to look on his home with greater satisfaction than he has ever done before.

The number and dimensions of the apartments essential to health in a dwelling must be proportionate to the number of its occupants, and suitable provision must be made for all that appertains to a well-ordered domiciliary life, not only that of the master and mistress, as well as of the children, but also that of the servants, whose health and morals it is the duty of their employers to care for. In most dwellings the scale of accommodation chiefly depends on the means and circumstances of the occupants, in which the variety is so great that we shall not attempt to give anything but a brief outline of what may be termed the minimum provision which ought to be made for a family consisting of parents and children of both sexes, belonging to the labouring class, undoubtedly the most numerous section of the community. We should say that a labourer's dwelling in the country should have a small entrance lobby, a living room not less

than 150 feet in area, and a scullery of from 60 feet to 80 feet in area, in which there should be a stove or fireplace for summer use, as well as a copper and sink; there should also be a small pantry. Above should be a parents' bedroom of not less than 100 feet area, and two sleeping-rooms for the children, averaging from 70 to 80 feet superficial each, with a distinct and independent access. Two of the sleeping-rooms at least should have fireplaces. There ought also to be a properly-lighted, ventilated, and drained closet, as well as suitable enclosed receptacles for fuel and dust. The height of the rooms, in order to their being healthy, should be scarcely less than 8 feet, and even 9 feet would be desirable but for the extra expense. With a view to ventilation, the windows should reach nearly to the ceiling, and the top be invariably made to open. In windows which have transomes as well as mullions, some of the upper compartments may be hung on centres for this purpose.

Having in our last paper, says "The Farmer," taken up the consideration of some of the points connected with the accommodation, we are now prepared to proceed with the plans of cottages which have been recently erected, and to note how far they carry out or embody the principles or assumed principles to which, in that paper, we made more or less direct reference; and for the purpose of the present one, we shall endeavour to exhaust the very suggestive article or essay by Mr. Baily Denton,

read before the Society of Arts, and entitled "The Economy of Agricultural Cottages," in which various plans are given, with remarks bearing upon

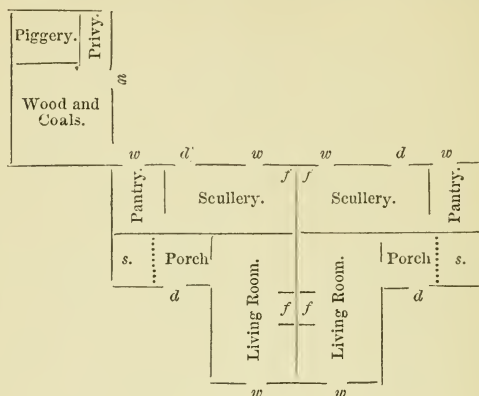


Fig. 1.

the economy of their construction, as well as upon the convenience of their arrangement.

In fig. 1 we give the ground plan, and in fig. 2 the chamber plan, of semi-detached cottages erected

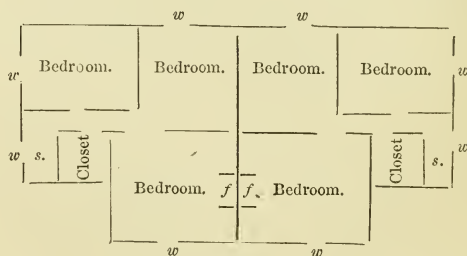


Fig. 2

by Mr. Robson on the estate of the Earl of Pembroke. In these type diagrams the various apartments are named, letters *d*, *w*, *f*, and *s* indicating the positions of doors, windows, fireplaces, and stairs respectively.

In fig. 3 we give ground plan, and in fig. 4 chamber plan, of a pair of cottages erected by the late Duke of Bedford on his estates in Devonshire and Bedfordshire; and fig. 5 gives the arrangement

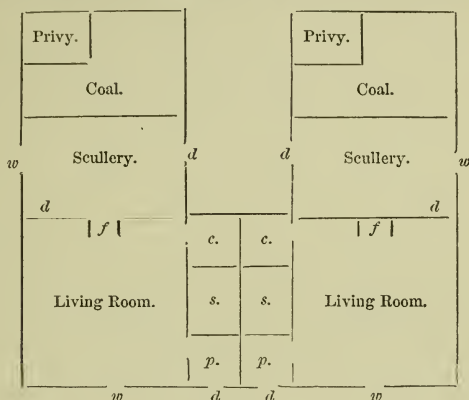


Fig. 3.

of the ground plan of a block of four cottages (fig. 6 being the chamber plan of same) in which there are two cottages having two bedrooms, and two three bedrooms. In the plans in figs. 3 and 4, each cottage has only a single bedroom; in these plans, the letters *c c* indicate the position of "closets."

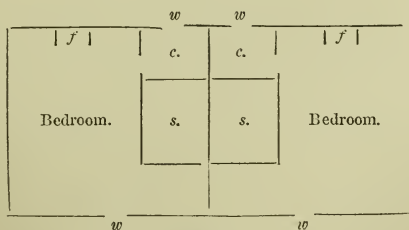


Fig. 4.

In fig. 7 we give the ground plan of what Mr. Denton calls "excellent cottages," erected on the

estate of Sir Henry Dashwood, in Oxfordshire; and in fig. 8 the chamber plan of same. These cottages contain each three bedrooms, but one of these is

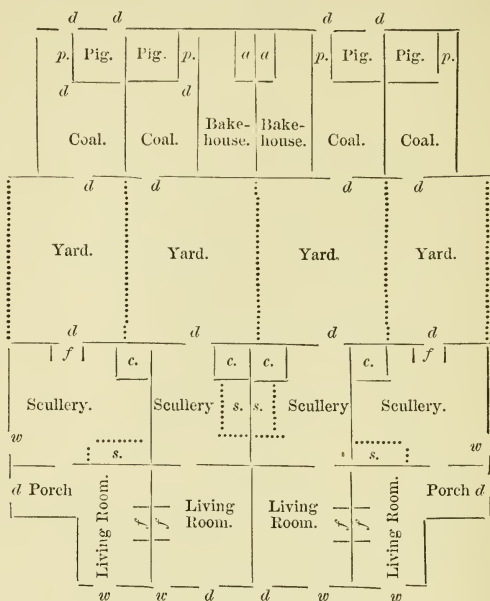


Fig. 5.

placed on the ground floor, and the other two above : the scullery and pantry are under a lean-to roof.

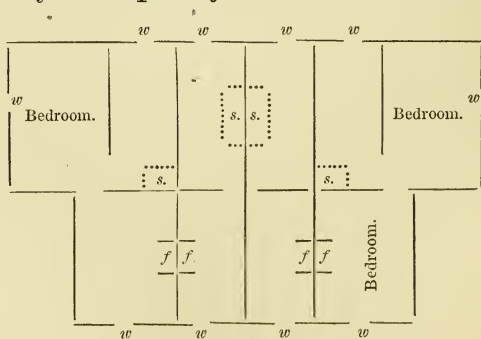


Fig. 6.

Fig. 9 shows the ground plan, and fig. 10 the



chamber plan of a different arrangement of cottages built on the same estate. In fig. 7 the letter *e* indicates the position of the storeroom. Captain

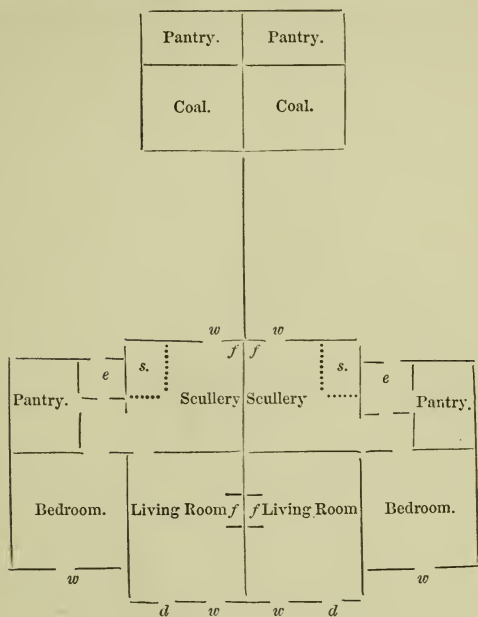


Fig. 7.

Dashwood, under whose directions these cottages were built, explains the advantages arising from

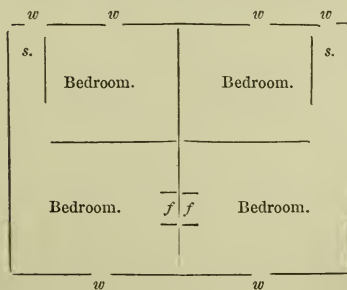


Fig. 8.

their arrangements—some points of the explanation,

# PLANS OF COTTAGES.

it will be observed, touching upon some of those referred to in our last paper. “The down-stairs bedroom,” says Captain Dashwood, “is adopted, because it is found that a farm labourer, though

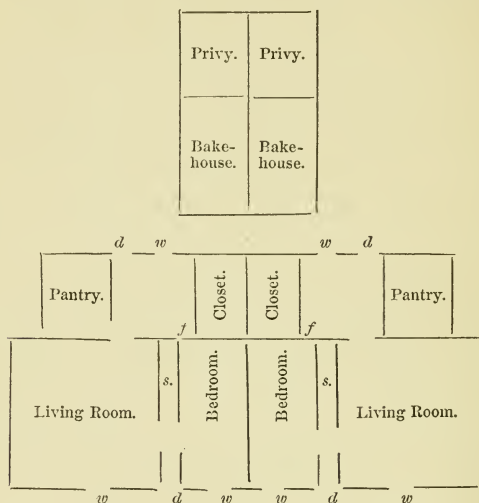


Fig. 9.

requiring a third bedroom at one stage of his family's growth, does not require it for any length of time, as his family are either very young, or as soon as able, go out to service. The ground floor

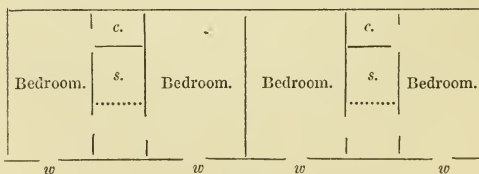


Fig. 10.

bedroom can at such time be used for a lodger ; or, when the parents get old, they can retire to this room, and admit a married child, or even another married couple, and help to pay the rent. The old woman,

by looking after the children, enables the young wife to attend to work, and the old can help to gain a living by doing duties which frequently devolve on children, to the loss of their education. The advantages of this plan are—1. That of enabling old and

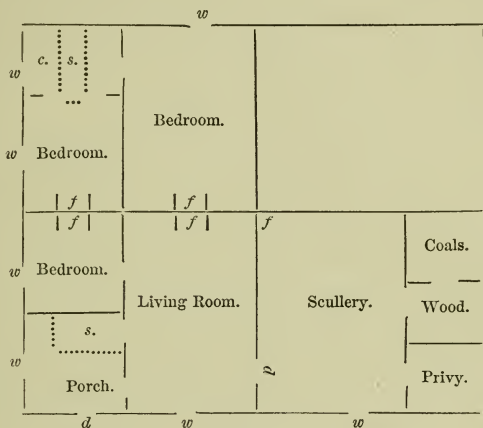


Fig. 11.

young people to reside under one roof, thereby securing nearly all the advantages of two cottages; 2. It secures greater privacy from the position of the rooms, as, under ordinary circumstances, the parents would sleep below and the children above, and the partition walls would be constructed of brick, and not lath and plaster, as is the case with ordinary three-roomed cottages; 3. It secures greater warmth and less draught; and 4. The third downstairs room will be found available, if required, as a workshop, or as a bedroom especially suitable for a crippled child or an aged parent."

In fig. 11 we show an arrangement of cottage designed by Mr. B. Denton, a modification of the

same arrangement of sleeping room as given in figs. 7 and 8 and 9 and 10, in which the scullery forms a small covered yard, extending from the cottage to the outbuilding. "The advantages of this arrangement are that, the yard being under cover, it is always dry, and more space is given in the scullery, while the yard or scullery is so constructed that it cannot be misappropriated in its use.

Care in the management of the manure cellar or ash-pit is most essential to the health of the occupants of the houses. Such gases as ammonia and sulphuretted hydrogen should be carefully prevented from coming out into the air. These, while they give life to plants, are death to man. Sulphuretted hydrogen is not only very disagreeable to the smell, but it is so poisonous that if it float in the air breathed by human beings, even in the proportion of one part to 100,000, it sometimes causes death. In one case a strong healthy man came home from his work and went to bed. An hour had hardly elapsed when he was found dead. In another instance, a healthy child was taken ill in the morning and was a corpse at night. In both cases the air breathed was analyzed and found to contain sulphuretted hydrogen. If breathed, even in very small quantities, it produces stupor, or causes a low fever, which if the sufferer be not relieved by removal to perfectly pure air, may end fatally. Carbonic acid, when breathed in the proportion of 15 to 20 parts in 1000 of air, causes immediate dis-

tress and feelings of suffocation, accompanied often with giddiness and headache. This is sometimes followed by a slight delirium and then by an irresistible desire to sleep. If breathed in still larger quantities it not unfrequently causes death. The fumes of smoking charcoal, in a close room, have often been fatal to people sleeping in the room. The effects, if breathed in smaller proportions, are dulness, heaviness, difficulty of thought, and apparent stupidity. The extreme sleepiness and dulness sometimes observed in children who have remained several hours in an ill-ventilated school-room, are, doubtless, often caused by the carbonic acid in the air of the room. This comes from the breath of the occupants of the room, and sometimes from the fireplace or stove. Ammonia breathed, when very strong, immediately takes away the breath. When weaker, it irritates the lungs, and, even when very weak, if breathed for a considerable time, it produces symptoms of typhoid fever. These poisonous gases are generated in drains and sink-holes, in heaps of dirt of any kind, in damp cellars and close rooms, in dirty ditches, in muddy puddles, swamps, and undrained marshes, and wherever water is allowed to remain stagnant. These poisons show their presence by rendering the air disagreeable to the sense of smell. Whatever is offensive to this sense is more or less dangerous; and, if foul air, that is, bad-smelling, fetid air, be breathed, it is always more or less poisonous. The poison may act



slowly, but not the less surely, and it renders a person who breathes it liable to fever, cholera, consumption, and other fearful diseases. It is universally found that people living in damp and dirty places, in houses ill-ventilated, over wet cellars, or on ground badly drained, are the first to be attacked by cholera, dysentery, and various kinds of fever.

Porous earth acts on putrefying animal and decaying vegetable matters on the same principle as that on which the purifying powers of the charcoal depend. On account of their greater porosity and absorbing properties, wood and peat charcoal are superior to earth as disinfectants. However, dry earth is a very good absorber and destroyer of foul smells; and as it can be had anywhere at little cost, it deserves to be used extensively, especially in the country for preventing nuisance and loss in fertilizing constituents, which is caused by the careless mode in which human excreta are usually disposed of. Earth impregnated therewith, like charcoal, has the power of purifying itself on exposure to the air; so that earth may be used over and over again for the disinfection of human excreta. It is indeed worthy of special notice that a mixture of earth with nightsoil, after having been kept for some time under a shed, confined at one or more sides, and covered by a roof to exclude rain, and become dry, has its original disinfecting powers almost completely restored, and may be used again for absorbing and retaining the manuring elements of a fresh quantity of nightsoil.

Earth in this way may be used three or four times over for the disinfection of human excreta, and at the same time becomes a valuable vehicle for absorbing and concentrating all the fertilizing constituents which enter into the composition of liquid and solid excreta. Human urine contains 91 to 94 per cent. of water, and fæces not less than 80 to 85 per cent. ; hence the practical difficulty of converting them into a dry and portable manure. Simple evaporation or artificial drying is impracticable ; because, in the first place, it creates an intolerable nuisance ; and secondly, because it is attended with the decomposition and loss of the nitrogenous and most valuable manuring constituents. These practical difficulties which are experienced in the conversion of nightsoil into a portable manure, may be completely obviated, at all events in the country, by the free use of dry earth in closets. If a sufficient quantity of earth is employed to absorb completely the mixture of the excreta, the contents of the closets can be removed periodically, say, once a month, in the daytime, with little or no inconvenience. They should be wheeled at once under a roofed shed, and spread out as much as the space admits, and left exposed to the drying influence of the air. According to the state of the weather the mixture of nightsoil and earth will become sufficiently dry in two or three months, when it may be used again in the closet like fresh soil, and the same process be repeated three or four times. During the drying in the shed no appreciable amount

of fertilizing matter is lost, and as the earth after each removal from the closets becomes charged with an additional quantity of manuring matter, a very useful manure is finally produced with little trouble and at a mere trifling expense. In country places, where proper drainage is not provided, the nuisance of open closets may be best avoided by the use of the arrangements adopted in the so-called earth-closets.—*Voelcker*.

We would call attention to the great danger that exists in using impure water for drinking purposes, either by man or beast, and we know that wells are often sunk in too close proximity to ash-pits and farm-yard dung-pits to allow the water to be wholesome. The following case clearly proves the importance of being particularly careful with regard to this matter:—Mr. Humphreys, coroner, resumed an inquiry relative to the death of John Davis, aged twenty years, through alleged impurity of water. Deceased was mate of the barge Medway, which entered Bōw Creek. Deceased went on shore and got a bucket of water from a pump. Later he got a second bucketful from the same pump, and then a man told him the water would poison him. Some of the water was boiled for breakfast for himself and the captain of the barge. He also drank some of the unboiled water from the bucket. He was seized with violent cramps, was taken to a doctor, and treated, but next day he died, after great suffering. Some of the water from the pump was sent

by order of the coroner to Dr. Letheby for analyzation. The Professor reports that the water contains 61.5 grains of saline matter per imperial gallon, besides 28 grains of organic matter, and much ammonia. "The saline matter," he adds, "as well as the organic, is chiefly derived from surface drainage, and the presence of ammonia indicates percolation from a sewer or a cesspool. The water is quite unfit for drinking purposes, and from the nature of the pollution is very likely to have occasioned choleraic diseases, especially if drunk without previous boiling." Mr. Brownsfield said that deceased died of cholera, without doubt arising from the impurity of the water. The coroner summed up, and the jury returned a verdict that deceased died from choleraic disease, occasioned by drinking polluted water from a certain pump.

Whitewash is one of the most valuable articles in the world when properly applied. It prevents not only the decay of wood, but conduces greatly to the healthiness of all buildings, whether of wood or stone. Outbuildings and fences, when not painted, should be supplied once or twice every year with a good coat of whitewash, which should be prepared in the following way:—Take a clean, water-tight barrel, or other suitable cask, and put into it half-a-bushel of lime. Slake it by pouring water over it, boiling hot, and in sufficient quantity to cover it 5 inches deep, and stir it briskly till thoroughly slaked. When the slaking has been effected, dissolve

it in water, and add two pounds of sulphate of zinc and one of common salt: these will cause the wash to harden and prevent its cracking, which gives an unseemly appearance to the work. If desirable, a beautiful cream colour may be communicated to the wash by adding three pounds of yellow ochre; or a good pearl or lead colour, by the addition of lamp, vine, or ivory black. For fawn colour, add four pounds umber—Turkish or American, the latter is the cheapest—one pound Indian red, and one pound common lampblack. For common stone colour, add four pounds raw umber and two pounds lampblack. This wash may be applied with a common whitewash brush, and will be found much superior, both in appearance and durability, to common whitewash.

The sin of overcrowding appears to prevail in the country quite as much as in London, and the condition of the poor seems in some respects to be more lamentable and helpless in the rural districts than in those of an urban character. In the case of 821 separate parishes or townships of England, the population increased between 1851 and 1861 by more than 5 per cent., while the house-room became more than 4 per cent. less. The fear of adding to the number of the parish poor induces landlords to discourage the presence of the working classes, however essential may be the services rendered by the latter. Hence, in many cases, the labourer has to walk several miles to and from his work, and is



sometimes compelled to live in an adjacent town, and to pay a rent altogether disproportionate to his scanty means. Cottages falling into a state of ruinous decay are met with all over the country, and these are allowed to drop into a state of extinction, as a precautionary measure against an increase of the local poor-rates. "Open" villages, where speculative builders are able to operate, receive increasing crowds of those who are evicted from the "close" villages, and as one district is depopulated another becomes more densely thronged. There is also a style of hamlet termed a "show" village. Here there has been a sifting process carried out, until the only remaining cottages are tenanted by shepherds, gardeners, and gamekeepers. It is positively revolting to read the description of the lairs in which the great bulk of the peasantry are compelled to lodge. As for sanitary enactments, these are little else than a dead letter in the rural districts, the carrying out of these humane laws being often a matter subject to the pleasure of those who occasion the abominations complained of. At the same time it should be understood that the lowest depths of this misery are found among the miners and colliers--the various non-agricultural sections of the rural population.

It is positive cruelty to pull down country cottages and destroy the little gardens of the poor labouring men, driving them into miserable tenements in towns and cities, where squalor, ignorance, and crime too often await them. Every estate

should afford comfortable cottages, with as much garden ground as each man can cultivate during his leisure hours.

It is a pleasing sight of a Sunday morning, when the bell is sending its sober melody across the quiet fields, to behold the peasantry in their best attire, with ruddy faces and modest cheerfulness, thronging tranquilly along the green lanes to church; but it is still more pleasing to see them in the evenings, gathering about their cottage doors, and appearing to exult in the humble comforts and embellishments which their own hands have spread around them.

It is this sweet home-feeling, this settled repose of affection in the domestic scene, that is, after all, the parent of the steadiest virtues and purest enjoyments. Washington Irvine thus depicts it with remarkable felicity:—

“ Through each gradation, from the castled hall,  
The city dome, the villa crown'd with shade,  
But chief from modest mansions numberless,  
In town or hamlet, shelt'ring middle life,  
Down to the cottaged vale, and straw-roof'd shed;  
Th is Western isle hath long been famed for scenes  
Where bliss domestic finds a dwelling-place;  
Domestic bliss, that, like a harmless dove,  
(Honour and sweet endearment keeping guard,)  
Can centre in a little quiet nest  
All that desire would fly for through the earth;  
That can, the world eluded, be itself  
A world enjoyed; that wants no witnesses

But its own sharers, and approving Heaven ;  
That, like a flower deep hid in rocky cleft,  
Smiles, though 'tis looking only at the sky."

The late Prince Consort set a noble example. He cared much for the working-classes. His large and benevolent heart ever beat for the welfare of the poor labouring man. On his own admirably-managed estate his first care was to build suitable cottage accommodation for the labourers. At a meeting of the Society for Improving the Condition of the Labouring Classes, His Royal Highness said :—" I saw in this offer a proof of your appreciation of my feelings of sympathy and interest for that class of our community which has most of the toil, and least of the enjoyments, of this world. I conceived that great advantage would accrue from the endeavours of influential persons, who were wholly disinterested, to act the part of a friend to those who required that advice and assistance which none but a friend could tender with advantage. Depend upon it, the interests of classes too often contrasted are identical, and it is only ignorance which prevents their uniting for each other's advantage. To dispel that ignorance, to show how man can help man, notwithstanding the complicated state of civilized society, ought to be the aim of every philanthropic person ; but it is more peculiarly the duty of those who, under the blessing of Divine Providence, enjoy station, wealth, and education."

Every one should read the biography of His

Royal Highness the Prince Consort. It is truly most touching and interesting. How could it be otherwise of one whom our beloved Queen says, "God knows vice itself would ever have recoiled from the look alone of one who wore the lily of a blameless life." The entire compilation not only justifies and confirms the esteem with which Prince Albert's memory is universally regarded; but it warms our feelings and affection to the devoted wife who records his virtues, and in fact to the whole Royal family.

All experience proves that there cannot be a more unwise or destructive policy than that which tends to place the workman, or the labourer, in a situation only, as it were, one degree in the scale removed from starvation. It not only destroys every feeling of independence and respectability, but it operates as a temptation to crime, and too frequently he proceeds from the less to greater offences, till the amount in the aggregate throughout the country becomes fearfully alarming, and, unhappily, a generation growing up is presented to view who are more demoralized than their parents.

Let us be careful, however, to avoid any dictatorial interference with labour and employment, which frightens away capital, destroys that freedom of thought and independence of action which must remain to every one if he is to work out his own happiness, and impairs that confidence under which alone engagements for mutual benefit are possible.

Man has been created imperfect, and left with many wants, as it were, to stimulate each to individual exertion, and to make all feel that it is only by united endeavours and combined action that these imperfections can be supplied, and these wants satisfied.

If any man in England cared for the working classes, it was the good Prince. He understood the great difficulty of the time as regards these classes; namely, the providing for them fitting habitations. He was a beneficent landlord; and his first care was to build good cottages for all the labouring men on his estates. He had entered into minute calculations as to the amount of illness which might be prevented amongst the poorer classes by a careful selection of the materials to be used in the building of their dwellings. In a word, he was tender, thoughtful, and anxious in his efforts for the welfare of the labouring man. His constancy of purpose in that, as in other things, was worthy of all imitation. He did not become tired of benevolence. It was not the fancy of a day for him—it was the sustained purpose of a life.

One of the first of English statemen, the Right Hon. B. Disraeli, M.P., who has been for thirty years a constant attendant at the Royal Buckingham Agricultural Association, thus refers to the subject in a most able and brilliant address:—"I consider it of the utmost importance that agricultural labourers should be well housed. In my



opinion, it is more than a question of food or raiment. I believe we all eat quite enough, and many of us drink a great deal too much, but this I will venture to say, that no man can be too well housed. A perfect sanitary condition as regards habitations is one which, while it preserves and defends the inhabitant from the inclemency of the seasons, allows him to breathe and enjoy pure and unvitiated air. For these reasons it is the truest source of health and wealth. It is, therefore, a matter of great importance to the farmers that the agricultural labourers should be well housed. There are great difficulties in the way, and the first difficulty is, that it is an investment of capital which does not bring in directly an adequate return. This is an objection which I consider fallacious. The point is, what do you consider an adequate return? Ask the farmer whether he would like to have on his farm his labourers in healthy habitations, or living two or three miles from the acres which they cultivate in miserable hovels, which engender sickness and weaken their energy and strength. The farmer will say directly, 'Give me labourers who reside on my acres and reside in houses which allow them to come to their labour full of energy and vigour—energy and vigour given by sound sleep and pure air.' The farm will then be more valuable to the tenant, and, if so, it must be, in the long run, more valuable to the proprietor, and it does tell upon the rent. In this way the latter will find

an adequate return for his investment. I do not say that this is an easy difficulty to combat. It is a great one, but it must be met. The question, however, is usually argued as if the proprietor were called upon suddenly to sweep away all the miserable tenements that he has inherited, and to cover his estate with model cottages. That is impossible, for you cannot in an instant effect this great change. You cannot unhouse the whole peasantry from an estate at once. It can only be done gradually. Take a model estate of 2000 acres. On that estate you require a *minimum* of 60 cottages. The expenditure for creating 60 cottages would probably be £6000 or £7000. I have seen the estimate of such an expenditure. Well, how is a man to expend £6000 or £7000, which is, perhaps, three times his rental, unless he has that which we have no right to suppose—other sources of capital? No one expects anything of the kind. No one expects that because you have discovered a want in your social system and a duty to perform, that it is to be done in a manner injurious to yourselves. You cannot expect every landed proprietor to be a Duke of Northumberland—a man whose hand is as extensive as his fortune, and who built cottages on 200,000 acres at an expense of some £500,000. Her Majesty conferred a riband on the Duke of Northumberland because he created a Channel fleet at the moment we had none; but the man who lays out £500,000 in building cottages on his estate as much deserves

a blue riband as the man who creates a Channel fleet, or even at the head of a Channel fleet leads us on to victory. Every man cannot do what the Duke of Northumberland has done, but every man can do something. He may build a few cottages, or repair others. You ought to keep before your eye, clearly and closely, the object you have to obtain, and avail yourselves of every opportunity of accomplishing it. The other day I saw some inferior tenements built by persons who speculate in building cottages. These inferior tenements were purchased and converted into excellent cottages—not exactly model cottages, but cottages in which a man may live in health and in some degree of comfort and happiness. These are opportunities of which every man may avail himself. This is a duty which must be performed. The question is becoming, both in town and country, one of paramount interest. The greatness of the country depends on the race that fills it, and, whatever our ancestors may have done to make the country great or famous, whatever liberty they may have acquired, whatever wealth they may have accumulated, if the race becomes inferior, you lose all these results and all these blessings.”

It is truly refreshing to find the extra-parliamentary speaking of the day turning more and more upon questions of science and experience, as applied to those arts by which human life is supported and rendered tolerable, and ceasing to harp on

political subjects which have been already worn threadbare. Should it be asked "what has the question of labourers' cottages to do with the subject of estate management?" the reply is, a very great deal, for it is the hand of the labourer that improves properties, and causes them to yield more largely in the shape of rent. The prosperity of an estate very much depends, too, upon the people who live on it, and the health and energy of the labourer depend much on the cottage he inhabits. The question of labourers' cottages is an all-important question, and one which ought to occupy most seriously the best attention of landlord and agent; and, without being over critical on the conduct of landlords and agents, it may be readily admitted that of late there has been some improvement in the condition of the labouring class. Moreover, much of the fault lies with the labouring classes themselves. As Mr. Disraeli said very pithily, a man may easily eat too much, and drink too much, but no man can be too well housed.

The labourer is, in fact, the life of the soil—the man whose hands must carry out whatever it is intended to do, and whose work must give to the soil its value. Many persons suppose that machinery will have a very detrimental effect on labourers. In this notion we do not concur. Here are we, producers and consumers, 21,000,000 of people, living on a great farm of nearly 20,000,000 arable acres, and probably nearly as much grass, employing as

in and out-door farm labourers, men, women, boys, and girls, equal in all to 1,150,000 men. We feed and use some 1,500,000 horses, of which probably 800,000 are strictly for farm purposes. We are annually inventing and manufacturing labour-saving machines at an extraordinary rate ; and every year at least 10,000 horses are added to the agricultural steam-power of the country, which must certainly displace both animals and men to some extent. We have taken the flail out of the hand of the labourer, and the reaping-hook is gradually going ; on many a farm he no longer walks between the handles of the plough ; he no longer sows the seed ; he does but a portion of the hoeing and the harvesting ; and yet, so far from being able to dispense with his assistance, he is more in demand than ever he has been. Agriculture is, in fact, experiencing the truth taught in the history of all other manufactures—that machinery is in the long run the best friend of the labourer. It is facilitating and cheapening production, and thus promoting the general good ; and labourers are discovering what their masters, too, have lately learned to realize, that a share in the general prosperity is worth more than the exclusive advantages conferred by a monopoly.

The Hon. Samuel Laing, M.P., late Finance Minister for India, remarks, in his book of Travels in Norway :—Whoever has observed the condition of our labouring population, will admit the influence of good habitations upon the moral habits of a people.



The natives of New Zealand have dwellings more suited to the feelings and decencies of civilized life than the peasantry of a great proportion of Great Britain and Ireland, who live in dark, one-room hovels, in which not only household comfort and cleanliness are out of the question, but the proper separation of the sexes can scarcely be maintained. Can any reflecting person doubt that it is an important advantage to the labouring class of a country that their standard of living is pitched high as to lodging, food, and clothing? It is the most effective check upon pauperism and over population. Why does the Irish peasant marry so recklessly? Because his idea of a suitable dwelling for a man in his station is a hovel of raw earth and sticks, such as a man may put up in a forenoon on a hill side; a bucket full of potatoes is his standard of food; a tattered great coat, of raiment. With these he is in no worse condition than the population around him, and therefore he marries. If the ideas and habits of the country required a more expensive and comfortable sort of habitation for the very meanest person of his own station, he would not marry until he had acquired the means of lodging like his neighbours; nor would he find a wife who would leave a decent habitation to burrow in a hole like a pigsty. Every man looks to what is considered proper and reputable in his own rank; and the poor man having little else to give him importance, is generally more tenacious of the proprieties

belonging to his station than the rich man of what is suitable to his sphere.

In noticing the measures which ought to be adopted by landowners and employers generally for the benefit of their dependents, such as tenants, or workpeople in their constant employ, we feel that a quotation from the letter of the late Duke of Bedford is the best reply which can be made to the excuses of many for their neglect of duty in this respect:—Cottage building, except to a cottage speculator, who exacts immoderate rents for scanty and defective habitations, is, we all know, a bad investment for money; but this is not the light in which such a subject should be viewed by landlords, from whom it is surely not too much to expect that whilst they are building and improving farmhouses, homesteads, and cattle sheds, they will also build and improve dwellings for their labourers in sufficient numbers to meet the improved and improving cultivation of the land. To improve the dwellings of the labouring classes, and to afford them the means of greater cleanliness, health, and comfort in their own homes; to extend education, and thus raise the social and moral habits of those most valuable members of the community, are among the first duties, and ought to be among the truest pleasures, of every landlord.

The example which was set by his Grace in building and improving the cottages on his estates in seven different counties involved, in the course of

eight or ten years, an outlay of about £70,000—truly a princely expenditure.

The Earl of Leicester, too, has made some valuable remarks upon this important and interesting subject. The noble Earl said that he was the owner of 521 cottages, supplying probably about 450 able-bodied labourers. “I calculate that 950 labourers are required to cultivate my property; thus leaving 500 to be obtained who are not resident upon the estate. I will divide the labourers employed into what I will call the home and foreign supply. The home supply can always be depended upon; they have constant employment; and although wages are nominally 10s. per week, yet, owing to the system of piece work (a system as beneficial to the labourers as it is profitable to the employed), I think I may state their earnings to be 12s., with a considerable increase in hay and corn harvest. They live in good houses, and I may say that, with hardly an exception, owing to the untiring energies of my late agent, Mr. Keary, and my present agent, Mr. Shellabear, they live in decency and comfort; they almost all have good gardens, and for these and their houses, which are let by the week, they pay an average rent of £2 17s. 4d. per annum. These men will remain on the estate; but of what does the foreign supply consist—those five hundred men who are required properly to cultivate the land? They have no certainty of constant employment. Under the most favourable circumstances, if living within the parish,

they occupy houses that have been built upon the speculation of a remunerative return upon the outlay, and to afford this they have to pay £4 or £5 a-year for a meagre dwelling, in which they cannot live decently or comfortably, and they rarely have a garden. But in very many cases they have also to walk three or four miles to and from their work in all weathers; they have not the same attention in sickness or ill-health as those resident on the estate, and there is not, and cannot be, any tie to bind them to it. I say it is much to the credit of those men that they are seeking happier homes and better masters; and in these days of increasing intelligence, and, consequently, more rapid and direct communication with the rest of England, I believe that the scarcity of labour we are now experiencing is merely the commencement of what will be seriously felt in our agricultural districts unless an immediate remedy is applied; and the only remedy is to build as speedily as possible sufficient cottages for the larger proportion, if not for all those required to cultivate the land, either upon the farm or in the parish where they are employed. I have no hesitation in saying that where there is a deficiency of cottages, the supplying that deficiency is one of the best investments a landlord can make. Admitting that the rent received from the labourer would not pay a remunerative interest upon the outlay, I much question whether the existing rents of land can be maintained without further cottage

accommodation, but I am satisfied that rents may be considerably increased when there is a sufficiency of homes for the labourer. During an existing lease there is not one of my tenants who is not willing to ensure me £5 per cent. interest upon any sum I may expend in providing homes for his labourers where they are required; and the time is not far distant when the first requirements of a farm will be, not ample farmsteads, but sufficient cottages. Now, a word as to the plans and the details of letting these cottages. It may be thought that this is solely a landlord's question; but it is not so. All that we may attempt to do upon such occasions as the present to improve the physical and moral condition of the labourer is of little avail unless he has a home suitable to the wants of himself and his family, and I have found my tenants not only eager to promote these associations, but ever ready to co-operate with me in educating, clothing, and attending to the wants of those they employ. I believe that my cottages are now constructed at the least possible cost, with the greatest amount of convenience and every accommodation required by a labourer and his family, and I much doubt whether the cottages I have built since 1863 at Tittleshall, Dunton, Weasenham, West Lexham, and Flitcham, can in any way be surpassed. They are substantially built, of the best material, and I have not attempted in any way to make them ornamental; the doing so would not only materially increase the original cost,



but add greatly to the expense of keeping them in repair. The cost has been from £100 to £115 per cottage, not including carriage, which is done by my tenants, and may be estimated at £12 per cottage. These cottages, as well as all others on my estate, are for the use of the labourers employed upon those farms to which they are contiguous, and I consider it right that the tenant should have the nomination of the occupant, but that in every case the cottagers should hold direct under their landlords, pay their rents to him, and not be removed except by his consent. It has been said that an Englishman's house is his castle, but this must not be applied without reservation to the cottage of the labourer. I find that, whether from an eagerness to obtain assistance towards the payment of their rent, or a dislike to turn out their children when married, overcrowding will gradually and certainly ensue, with the necessary accompaniment of want of decency and comfort, unless strict rules are laid down, and they are strictly enforced. As a rule the children, when married, must seek another home, and no lodger should be permitted without special permission."

We entirely concur in the noble Earl's views. What is the course taken by those industrious and sagacious little animals, the bees, when their numbers increase so much that the hive is no longer able to contain them? Do they not send out the younger members to form a new home, and by that

means establish two happy and flourishing communities, instead of crowding and stifling one another altogether in an habitation too small to contain them ?

It is of great importance that our young unmarried people should understand, that without due prudence and forethought on their part, no assistance that the rich can possibly bestow on them will effectually improve their circumstances. It is a great mistake to suppose that the distribution of money is capable of removing the pressure of poverty. No doubt, a sum of money given to a single poor family may effectually relieve them. But suppose that, by a general contribution of the rich, five shillings per week were given to every labourer in the kingdom, over and above his usual earnings. Is it not very clear, that as soon as they all went to market for more meat, more bread, more beer, than they had been accustomed to buy, the price of meat, bread, and beer would immediately rise ? Is it not well known to every one who has ever attended a market, that an increase of demand immediately raises prices ?

The history of our Poor Laws also serves to prove how little can be done, by the distribution of money, towards relieving the wants of the poor. About eighty years ago, the total amount of poor rates raised in all the parishes of England and Wales was little more than a tenth part of what it now is, yet the poor seemed quite as well off then as now. No

doubt, if money could avail for this purpose, poverty would long ago have been driven from our land. But shillings and half-crowns cannot be eaten; before they can satisfy our hunger they must be turned into bread. Therefore, the question is, How much bread have we, and how many mouths to be filled with it? If a hundred loaves are divided between a hundred persons, each may get a whole loaf, but if a hundred loaves are to be divided among a hundred and ten persons, it is impossible that every one of them should get a whole loaf. If we give money to fifty of them, so as to set them above the rest, then fifty may still be able to procure a whole loaf each; but the remaining sixty will have so much less. Suppose even the whole property of the rich were taken from them, and divided among the poor; the poor would not have any more to eat or drink than at present: for a rich man does not eat more than a labourer. There would still be the same quantity of food in the country as at present, and the same number of mouths; therefore, the share falling to each person would be the same as at present. The poor would, indeed, for a time be able, in this case, to have more silver spoons and silk stockings than at present; but they would not have more beef or beer, nor would they be freed from the necessity of daily labour.

Professor Leone Levi estimates that the general average rates of weekly earnings are:—For men in England and Wales, 22s. 6d.; in Scotland, 20s. 6d.;

in Ireland, 14s. 4d. For boys and youths under twenty—in England, 6s. 6d. ; in Scotland, 7s. 8d. ; in Ireland, 6s. 3d. For adult women—in England, 12s. 6d. ; in Scotland, 10s. 6d. ; in Ireland, 9s. 9d. ; and for girls in England, 8s. 6d. ; in Scotland, 8s. 2d. ; and in Ireland, 7s. 4d. The total average for the United Kingdom he thus makes to be—For men, 19s. ; for boys under twenty, 7s. 3d. ; for women, 11s. ; and for girls, 7s. 10d. On the assumption that in most families there are two earners of money, he estimates the average weekly earnings of families at 31s. in England, 28s. 2d. in Scotland, and 23s. 6d. in Ireland. In two elaborate tables he gives the number of persons employed in different occupations in the United Kingdom and the amount of earnings in the different occupations. The number of the employed amounts in the aggregate to 11,018,616 persons ; the amount of earnings, after all deductions, to £418,034,284. To explain and illustrate these two tables, in which he divides the working classes into various orders and sub-orders, he has added tables for each order and sub-order, showing how many persons are employed in each and the amount of their separate and aggregate earnings.

“The chief prosperity of any country depends,” says Mr. Donaldson, “on the distribution of wealth, and the state of easy competence in which the different classes of the population are placed—the unequal distribution and misapplication of the

means has constituted the great evil in all ages and countries in the world, and nations progress in civilization and improvements in proportion as these barriers are broken down and removed. The upright character and correct moral conduct cannot exist in a state of abject poverty—the evil parts of human nature are called into action in the struggle to obtain by any methods that which should be got by industry and application. The moral strength of an united or an individual state of existence bears a high ratio to the physical, and the value of integrity and upright feeling in every class of society is inestimable. Education and early impressions exert a powerful influence, but it happens that writers on these subjects wholly neglect to lay the foundation, from too great anxiety and haste to rear the superstructure. The means of procuring and receiving education must first be afforded, the physical wants must be supplied before the moral—the cravings of nature admit no excuse. The beautiful principles of demonstration, and the abstract truths of morality and social wisdom cannot be taught to a starved being—he will not listen to us, he must be clothed and fed, and then taught—and hence the necessity of providing the means and of placing them in the power of all classes, and by affording employment and remuneration finally produce the elevation of character which constitutes the true strength of society. It is natural to suppose that the power or means that has raised one



or more classes above crime and immorality will raise others. A highly improved physical condition may be attained without a corresponding moral development—but no great mental excellence ever will be produced without a generally improved physical state, arising from an abundance of the comforts and necessities of life. But the moral world and the relations of society have hitherto presented only the painful spectacle of the perpetual warfare of jarring elements contending for the mastery, arising from a resistance and an opposition to the laws of nature and of reason, which have marred the face of the fair creation, and have spread desolation and misery over the globe. When we contrast that deplorable view of human iniquity, plunder, fraud, and violence, with the simple, uniform, and harmonious plan on which the natural world is conducted—with the beautiful order which is unfolded in the unceasing operations of production and reproduction, and with the amazing grandeur of the stupendous works that are produced in the profound tranquility and undisturbed regularity of nature's workshop, so gradual in operation as almost to elude the perception of our senses—there naturally arises in our minds the simple, the pleasing, and at the same time the very sublime idea, that the great Creator and ultimate end of all things will conduct the moral world through a number and variety of different states of existence to a similar termination of beauty and of order, the

full completion of which may be reserved for ages that are removed beyond the reach of our limited comprehensions, and verging into or forming a part of an inscrutable eternity."

It is moreover the duty of the Agent to provide innocent entertainment for the labouring people resident upon the estate which he supervises, and in this he should have the co-operation of the clergyman of the parish and other well-disposed persons. The subject, though differing from the high themes of the pulpit, is far from being at variance with the office and duties of a Christian minister. It is the duty of every clergyman to promote the welfare of the bodies as well as of the souls of his flock. Whatever tends to ameliorate their condition, to ennoble their tastes, to expand their ideas, to improve their physical well-being, opens a more favourable field for the influence of religion. By having resources of recreation within themselves, there would be less temptation to resort to haunts of dissipation or of low grovelling pleasure. The time of man cannot be wholly divided between sleep and labour, and it therefore becomes an important question how he is to employ his leisure hours. We should always have a lively sympathy with the labouring classes in their sufferings, and should never shrink from hard hands and fustian jackets. We have gone down into the pit, explored it, and seen all its horrors. We have walked the streets of our cities and towns, and felt heart-sick at some of the sights we have

witnessed. We have beheld the bloated wrecks of drunkenness, the diseased body, the blood-shot eye, and the hanging lip. We have witnessed the wretchedness of men, widows, and orphans, shivering and creeping in the cold, shoeless, shirtless, naked. We have heard the wail of those who prematurely people the grave-yards and the world of woe with victims of despair. We have beheld the poor sallow infant with its dying head laid wearily on the shoulder of its emaciated mother. We have witnessed the chill corpse of a youthful woman laid upon two frail chairs, with a broken-hearted mother weeping beside it, and no coffin to enclose the lifeless form. These, and more than these, have we seen, and we shudder at the recital. Let those who bask in the sunshine of opulence and luxury support every endeavour of the Agent, clergyman, and philanthropist to do good; let them do all that in them lies to provide the working classes with proper amusement during periods of relaxation from the toils of labour, and so rescue them from dissipation. Let us remember that charity is love to man, founded on love to God—that beneficence is a most precious tie between the children of one common Father, over which the artificial distinctions of a vain world ought not to have any power. Humanity is the grand pedestal of religion; and he who is without charity has no claim to the name of Christian. Whatever the recreation may be, it ought always to embrace

music, which so surely fascinates the mind and sweetens existence. It creates pure and holy feelings in the souls of the poor, and takes away loneliness from the lowly heart. An Agent is to be regarded as the guardian of the various subordinates employed on the estate of which he has the management. He is responsible for many of their actions, and his relations to them are of a very intimate kind. If he be convinced that it is of great importance to the interest of the proprietor that a band of well-trained, intelligent workmen should be raised up on every estate, he will see the propriety of introducing educational measures to bring about the desired result. This is the way to overcome the ignorance and faithlessness of labouring men—failings so often deplored and so bitterly complained of.

The Earl of Lichfield and Lord Lyttelton gave addresses at a meeting in South Staffordshire on Working Men's Clubs. Lord Lichfield said:—

One of the great misfortunes of the working classes in that very large manufacturing district was, that they had so very little means of recreation and enjoyment. He had frequently talked to the working classes on this subject, and he had seen papers written on the subject; and the most prominent feature that was brought before the mind was, that they wanted some place to which they could resort, and secure that social recreation without going to the public-house. A properly

conducted working men's club would afford them the facilities they require ; but, somehow or another, he utterly failed to understand how it was that, although there was that strongly-expressed feeling among them, yet, when the opportunity was offered, they did not avail themselves of it. How was this ? He certainly objected to the use of drink in the conversation-rooms, and also those games of chance which might lead to gambling. There was nothing in the upper classes of society, and more especially among the junior branches, which had effected so great a revolution amongst them as the establishment of clubs. Before clubs were established in London they all knew that drunkenness used to be very common amongst the higher classes of society, and there was no doubt that there was a great deal of that amongst the lower classes in consequence of their habit of meeting together at nights in public-houses. The moment the clubs were established there was a good influence brought to bear upon those who were inclined to give way to the spirit of temptation. The upper classes now entirely discountenanced excessive drinking amongst their order. Why should not a similar influence be brought to bear upon the working classes through the operation of their clubs ?

Lord Lyttelton remarked :—

The London clubs were as much like the clubs of the working classes as they could well be. Those who made use of them were chiefly gentlemen who,



during the day, were hard at work in the Government and other offices, and they went there as much for the change of scene as anything else. This produced the desired relaxation. They did not, however, as a rule, take these men away from their own firesides, although many of them had for their homes places in the suburbs of London as uncomfortable comparatively as were the homes of some of the working classes. His lordship denounced the cry that uncomfortable homes were an excuse for men leaving those homes. Their wives did not do so, nor ought they; and it would be an immense calamity if men neglected the higher education of religion and home to seek that of the club.

The incomes and burdens of the several classes of society is one of such general interest that we here notice them. The calculation of the "Edinburgh Review" is this:—

The upper and middle, or "propertied" classes, 8,000,000 in number, have an aggregate income of £350,000,000, and pay £58,000,000 of taxes—*i.e.*, 150s. a head, or 16 per cent. on their income. The working, or 'wages' class, 23,000,000 in number, with an aggregate income of £250,000,000, pay £26,000,000 in taxes—*i.e.*, 23s. a head, or not quite 10 per cent. on their incomes.

Professor Levi's calculation is that the income of the middle and upper classes reaches £349,000,000, divided among 8,000,000; that they pay in taxes about £50,000,000—*i.e.*, 125s. a head, or nearly 15

per cent. ; while the working classes, 22,000,000 in all, have an income of £418,000,000, and pay £24,000,000 in taxes—*i.e.*, 22s. a head, or only 6 per cent. of their income.

It is obvious that the only discrepancy worth noticing is in the earnings of the working classes, which one writer places at £418,000,000, and the other at £250,000,000. In fact, the “Edinburgh Reviewer” estimates the *family* income at £45 or £50, and Mr. Levi at £85. We have been at some pains to trace out the cause of this enormous difference of estimate, and we believe it arises mainly in one item—for the calculated wages *per head* are not very widely at variance, and as the remuneration of labour has risen greatly in the last seven years, probably the 250,000,000 of the earlier authority may now be placed at 280,000,000. But we find that Mr. Levi estimates not only that *two of a family* are always earning wages, and earning them for forty-eight weeks regularly in the year, but that *one-half* of all the working classes (men, women, and children) are paid labourers, or 11,000,000 out of 22,000,000. Surely, when we reckon up the women who merely keep house, the number of infants under ten or twelve years, and the old people above sixty-five or seventy who earn nothing—to say nothing of a million of paupers—Mr. Levi must here be considerably beyond the mark. Everybody must know numbers of families, especially in rural districts,

where out of a family of six one only is a "bread winner"—still more where only two are in receipt of wages.

There is, we are sorry to say, a growing disposition in Land Agents to abolish small farms altogether. The sizes that farms ought to be, however, are not to be arbitrarily determined. The whole question depends on circumstances, comprehending the qualifications of tenantry, the nature of the soil and climate, also the best system of farming which is possible in the circumstances. Not only are small farms profitable in a national point of view, but they serve as steps in the ladder by which men of small means and industrious habits may raise themselves in the social scale; and such men succeed wonderfully by dint of hard labour and rigid economy. Were it only for their sake, then, a few small holdings should be retained on every extensive estate, and for the sake of fostering a spirit of enterprise amongst the rising generation. Moreover, it is in accordance with our experience that in many districts larger rents per acre are obtained for small farms than for large ones.

Unquestionably the tendency of the times is for large farms, and the argument most commonly used against this policy is, that there is less competition for them. But facts demonstrate that large holdings get the preference, and that tenants of large means are unwilling to establish themselves in concerns demanding great capital without the prospect of

lengthened occupation. Mr. Grey, of Dilston, in Northumberland, states that, for five farms he let, he had the following offers :—For the

1st,	with a rental of £2000,	there were	10	offers.
2nd	„	1305	„	6 „
3rd	„	1050	„	7 „
4th	„	258	„	6 „
5th	„	180	„	2 „

Here, then, for a large farm of £2000 a-year were *ten* offers, from highly respectable persons ; and for a small farm of £180, with good buildings and in good condition, only *two*. There is, however, nothing surprising in these results. Men who have made their capital in commercial and manufacturing business are now more than ever running after extensive farms. Still, there ought to be a limit as to size, even in endeavouring to meet offers of this kind ; and it does not always follow that such men make the best tenants. In most districts farms ranging from 200 to 400 acres in extent are more likely to be highly farmed than those which are considerably larger. It is only in a few favoured districts of the kingdom that we can find men capable of taking farms at a rental of £2000. The case we have instanced is exceptional. Taking, therefore, the farming community as we find it over the country as a whole, we are of opinion that farms varying from 100 to 300 acres, worth perhaps 35s. or 40s. an acre, are the most likely sizes to be most in demand.

Some persons will probably be surprised when we tell them that we have seen in California, where, indeed, the soil is the finest in the world for agricultural purposes, what may truly be described as mammoth farms. As an instance, there were harvested in one year on General Hutchinson's farm, near Sacramento, one thousand acres of barley, seven hundred acres of wheat, and eighteen hundred tons of hay. The full yield of wheat averaged thirty, and of barley, about forty, bushels per acre; the produce was estimated at 60,000 bushels, at \$1.33 (about 5s. 6d.) per bushel, or £16,000. The hay would bring £4000. Thus, this piece of land yielded £20,000, to meet capital, labour, and taxes. Altogether, California is a most magnificent country, having within its limits many wide-spread plains, much sublime mountain scenery, and numerous sylvan scenes of great beauty. Its mineral wealth is exceedingly great, and the industrial energy of its people really a marvel; these are as kind and generous as Nature herself has been to their soil.

No country can compare with America for the extent of her farms. A few weeks since Mr. Sullivan, of Illinois, sold his farm, of 22,000 acres, for 374,000 dollars cash. The purchaser, Mr. Alexander, also bought the stock, grain, hay, and farming implements, which made the amount of purchase-money quite 500,000 dollars. Mr. Sullivan has yet a farm of 45,000 acres. Truly, they do business in America on a prodigious scale.



Small farms, says Arthur Young, require too much manual labour, and do not yield a sufficiency of disposable produce. The persons who occupy them are deficient in capital and skill, so that the smallest improvements exceed their means. They require more horses, at the same time that they furnish only limited resources for raising live stock. The more farms there are on a given space, the more farm buildings and implements are needed; that is to say, the greater are the unproductive expenses.

Great farms, on the contrary, by distributing labour over a large surface, do not require so many horses or labourers, and, the local consumption subtracted, enable the cultivators to carry to market a greater quantity of alimentary substances for the use of the classes engaged in other pursuits. On such farms there is a division of labour, and each operative, being confined to one kind of work, performs it better. The farmers are, moreover, of a superior order, both in point of wealth and intelligence; and the higher profits which they realise furnish the means of effecting all needful improvements.

These assertions, of which the increase in the quantity of the produce of the soil seemed to attest the accuracy, have made an impression on a number of minds. Among the writers who endeavoured to propagate them was Herrenschwand, a physician, by birth a Swiss, and a distinguished economist. In a work, published in London in 1786, under the title

of a "Treatise on the Principles of Population," this writer reproduced the notions of Arthur Young; and his adoption of them in a work in which the bulk of the questions then engaging the attention of enlightened men were treated, had the more weight, seeing that he could be suspected neither of national partiality nor of professional prejudice.

To these statements the partizans of small farms opposed others entirely different. Small farmers, said they, display, in the smallest details of their business, a care and attention productive of the greatest advantage. There is not a spot of their fields of which they do not know all the capabilities, and on which they do not bestow the appropriate improvements and culture. Productions which great farmers cannot take up their time with, are for them a means of profit; and those of the poultry-yard and dairy, in particular, generally furnish to small farmers an extra source of income, which adds considerably to what they draw from the land.

Small farmers employ few labourers, and the greater part of the farm work is done by the tenant and his family with a degree of zeal and intelligence that is never found in hirelings, who have the interests of their masters so little at heart. The reproach preferred against them of a want of means to improve their land is unfounded, for if the profits which they realize are limited, the surfaces which they have to keep or put in good condition are re-

stricted, and only required advances corresponding to their size.

Since the Revolution of 1789, the territory of France has continually been parcelled out in smaller portions. This fact has often been proclaimed; but the evil still continues unremedied. We call it an evil because we deprecate the system of subdividing states so much.

According to official returns, the superficial area of France is now divided as follows:—

Nature of the Property.	Mean Extent.	Surface occupied.	Corresponding Population.
	Acres.	Acres.	
Large Estates .....	415	43,320,000	1,000,
Medium Estates ...	87.50	19,250,000	1,000,
Small Estates .....	35	16,800,000	2,400,000
Very small Estates	8.62	36,130,000	19,500,000
TOTALS .....		115,500,000	24,000,000

Of the one hundred and fifteen millions of acres of cultivated land, there are thirty-six millions possessed by proprietors whose estates do not exceed eight and a half acres in extent.

It is not true that small farms rear fewer animals than great ones relatively to their size. If sheep are less numerous on them, cattle are more so; and this may be almost taken for granted, seeing that the products which they raise, and from which they derive their profits, are those that generally require the most manure.

It is alleged that small farms require both more hands and a greater outlay for farm-buildings than large farms ; but what does that signify if the surplus of the gross produce which they furnish suffices to cover all the additional expenses which they may so occasion. The extra labour which they demand is even an advantage when their net produce is not inferior to that of other farms, for then, supporting a far denser rural population with an equal number of the manufacturing class, they contribute more than all others to the strength and power of the State.

Such are the reasons urged on both sides in favour of the different modes of culture, and they are all, to a certain extent, well founded, for there is no system which has not at once its particular advantages and drawbacks ; and the question, therefore, is, what proportion do these bear to each other ? To discover if the appliances of wealth operate in the long run better and more profitably than the personal activity and the careful attention which small farmers display in the smallest details of their business ; to see if the larger capitals of the one, applied to vast surfaces, render them more productive than the smaller capitals of the others, employed on smaller spaces ; these are the problems which have perplexed observers the most free from the prejudices of system, and which caused one of them, Mons. Sismondi, in his " View of the Agriculture of Tuscany," to say that, " the question

relative to large and small farms is one of the most puzzling and complicated possible, although a great number of writers on both sides have solved it with a promptitude which shows that they had only considered it hastily, and under a single point of view."

In fact, it is in the amount of the profit, or net produce—that is to say, in the amount represented by the portion of the gross product left after paying the attendant expenses—that we must seek for the true criterion of the goodness of the different modes of farming, and the certain test of their comparative excellence. Of two industrial establishments of the same magnitude, that to which a final casting-up of accounts leaves the greater profit necessarily claims the superiority. In agriculture the earth itself forms the material operated upon; and, after deducting the whole sums expended on it, that system of management which causes it to yield, on an equal surface, the greatest surplus, or net produce, is entitled to be considered the most efficient and the best.

A great portion of the land in this country is in the hands of the aristocracy, and other wealthy proprietors, who can occupy only a small part of it themselves. This is the case to a greater extent in Great Britain than in any other country in Europe, save Russia; but the condition of the inhabitants of the two countries is as wide as the poles are asunder. In Russia the sternest feudality exists.



The lord was, until recently, sole and paramount tyrant in his domains; all under him were in a state of absolute serfdom—*adscripti glebæ*—chattels attached to the soil, and disposable with it; while in England there is perfect freedom. The prevalence of large estates in this country curtails the number of middle-class landowners, whose place, however, is well supplied here by large occupiers. The capital, which would go but a short way in the purchase of land, is sufficient to place an active man in a highly respectable and most useful position as the tenant of a large farm, and the taste or ambition which elsewhere adds to the purchase of a small estate, tends here to the possession of an extensive holding. It is reasonable to think that a man planting himself and family down upon land in which he is to invest a large capital, and for which, by daily attention and habit, he is likely to conceive a strong local attachment, should like to remain there for a long period. But, besides those spontaneous feelings of local interest, the current of events, the free state of society, and the requirements of rural and political economy, tend strongly to the concentration of large operations. We have a continual increase of population which all the efforts of agriculture have hitherto failed to feed: the rational desire of the statesman, and the interest of the agriculturist, prompt them to do their utmost to supply its demand, by an increase of produce, and by obtaining that produce at a

diminished cost. The obvious means of attaining these desirable objects are to apply more skill and science to the cultivation of the land, and to effect greater economy in tillage, by a perfect division of labour and the employment of improved implements and machinery; and these are only to be effected on large farms.

There are no doubt situations in which an estate may be parcelled out in lots of two or three acres to great advantage, particularly near large towns; and we have known instances of a landlord's rent-roll being more than doubled by the change. Of course such small holdings are cultivated by spade-work. Keeping in view that it is properly-applied labour which makes the garden of the cottager to differ from the moor or barren waste by which it is surrounded, the conclusion cannot be avoided that spade labour must be productive of great and good results to the landlord as well as to the tenant.

An erroneous impression has somehow crept into fashionable circles—that if land is parcelled out into seven or ten acre lots, and is worked by spade labour alone, it is unremunerative, the tenants must be poor, and the reverse of industrious. That they can neither have meadows nor cattle; that they must necessarily farm badly; their lands be fatally condemned to sterility and themselves to utter poverty. If farming on a large scale is profitable, why should it not be so on a small one? So far as the proprietor is concerned,

there is ample proof that the judicious letting of land in lots of seven or ten acres will, in most cases be found exceedingly gainful. The system will add materially to the rental of an estate, and increase the amount of produce. The small farmer does not require to employ labourers, the work is done by himself and his family with a degree of zeal and intelligence that is rarely found in hirelings. The reproach preferred against the crofter of a want of means to improve his acres is unfounded, inasmuch as if the profits which he realizes are limited, the surface which he has to put into cultivation and keep in good condition is restricted also, and only requires advances corresponding to its size. Moreover, stalwart arms are a much more useful capital in increasing the productive power of the soil, than whole bushels of golden coin. Crofters, too, display in the smallest details of their business a care and attention productive of the greatest advantage. There is not a spot of their fields of which they do not know all the capabilities, and on which they do not bestow the appropriate improvements and culture. Productions which large farmers cannot take up their time with, are for them a source of profit.

It may be said with truth, that there is no word in the English language which is answerable for so many blunders, as this much misemployed word, *capital*. The true capital that improves a farm is to be found, as we have said, in the arm of the cultivator—in the mind and will that direct that arm—in the

patient industry that husbands every moment, and devotes it to some labour of which the labourer knows that he himself will reap the reward—in the energy and watchfulness which appropriate exertion to the future and not to the purpose of immediate enjoyment. These are the qualities that constitute capital.

We have always maintained that a proper gradation of holdings is the perfection of an estate, and that the method of clearance by which a property is mapped out into large farms without any regard to the necessities of the humbler classes of tenants is a social grievance and an economical blunder. We are quite aware that there are many small holdings where they should be fewer, but we also know that there are few small holdings where many more would be a great public benefit. It should be borne in mind, too, that the discouragement of industry is the chief cause of pauperization, and that it is quite a fallacy to suppose that an allotment system would establish a pauperized community on a grand scale.

We hope we may not be considered as advocating the cottar system as existing in many parts of the highlands and islands of Scotland and in Ireland. The island of Skye, for instance, is divided among twelve proprietors, the largest portion of it belonging to Lord Macdonald and Macleod of Macleod. We do not know the number of tenants in the island, except on the Macdonald estates, which in-

clude the parishes of Portree, Sleet, and most of Strath. The number in 1865, was 761, of whom 193 pay £2 and under ; 349 from £5 to £10 : 9 from £10 to £20 ; 2 from £20 to £50 ; 4 from £50 to £100 ; and 12 of £100 and upwards. .

Whilst we do not by any means approve of this extremely small croft system as in Skye, we heartily commend it on a larger acreage scale as practised on the Scottish estate of her Grace the Duchess of Sutherland and Countess of Cromartie. There we see how landowners benefit themselves while conducing to the comfort and prosperity of their poorer tenants. We could name properties in England as examples, but as we think it will be admitted that Scotland is the poorer, more sterile and more inclement half of the island, an illustration there will be more effective than any in the richer southern land.

In the year 1849, when forced expatriation was so rife in the Highlands of Scotland, a little band of poor despairing peasants, exiled from their own arable land, sought permission from the kind Marchioness of Stafford, now Duchess of Sutherland, to settle upon an unreclaimed piece of moor at Knockferrel, Strathpeffer barony. The Duchess, influenced by the high and generous sentiments which befit her position, most cheerfully conceded the request. Without loss of time we were instructed to survey the land and to lot it off in such areas as we considered would suit the strength and resources of



each family and suffice for their subsistence. So deeply interested did his Grace the Duke of Sutherland, the then Marquis of Stafford, feel in the whole arrangement, that he personally superintended the survey and the division of the land. What was then all but an unproductive waste, not worth 3s. an acre, now returns annually 21s. an acre rent, and presents a beautiful picture of fertility, peace, and prosperity—a thriving, grateful, and attached tenantry, who invoke blessings on their noble benefactors, who so opportunely enabled them to cherish that instinctive patriotism which binds them to the mountain nooks in the land of their ancestors.

The land was divided into seven divisions of ten acres each, and eleven of seven acres, making a total of 147 acres. This completed, a plot was assigned to each family, on which they immediately proceeded to build plain substantial dwellings, rough timber having been supplied by the proprietor gratuitously. The houses once erected for shelter, every available hand in the little colony was employed in digging, draining, clearing, and fencing. The labour was paid for by the proprietor, and cost £20 per acre. The land having been put into proper condition for cultivation, a lease of nineteen years was granted to each tenant on his agreeing to pay a rent of 21s. per acre. This yielded the proprietor five per cent. interest on the whole of the capital expended. The allotments, too, are yearly increas-

ing in value, and will one day let for enhanced rents. The four-course shift of cropping is adopted, and the average produce is full three quarters of grain per acre. Moreover, each tenant keeps an average stock of two cows, one stirk or steer, and a horse. The rents are regularly paid, the tenants continue to prosper, and they speak with the deepest gratitude of their obligations to the noble family of Sutherland.

Such results are indeed highly gratifying. There is an air of independence, too, about these poor people as they grow their own corn and vegetables; and their families have the advantage of their productive labour in their little plots of land, while they are adding to their own enjoyments. Surely it is well to encourage such industry. There are thousands of acres now in England, Scotland, and Ireland lying unproductive that might be put under culture with equal benefit to the proprietor and the peasantry. Let us therefore hope that the noble example of the ducal house of Sutherland may be extensively followed, so that the industry of the peasantry of our land may clothe the face of the earth with the pleasing aspect of cultivation. Permit us once more to bear testimony to the worth, benevolence, and unostentatious liberality of the amiable Duchess of Sutherland and Countess of Cromartie, and heartily to wish her flourishing little settlement increasing prosperity, and that she may long continue to command the affection, not only of her

little rustic population, but of all the tenantry on her Grace's magnificent estates.

“ O, to be cherished for oneself alone !  
 To owe the love that cleaves to us to nought  
 Which fortune's summer—winter—gives or takes !  
 To know that while we wear the mind,  
 Feature, and form, high Heaven endowed us with,  
 Let the storm pelt us, or fair weather warm,  
 We shall be loved ! Kings from their throne  
     cast down,  
 Have bless'd their fate, that they were valued for  
 Themselves and not their stations.”

Knockferral retains its primitive beauty, and from its heights, as far as the eye can range, are still to be found cottars in comparative comfort, drinking out of the wells out of which their fathers drank ; and though the necessaries of life may be scanty, a tranquil contentment, a simplicity, strong attachments, and a moral deportment, reigns among them, which must afford very delightful reflections to the promoters of these virtuous qualities. What a beautiful picture this—what a contrast to the times when Burns leant over his rustic desk lamenting a spoliation of wild woods and cots in his native country.

“ When, glinting through the trees, appeared  
 The wee white cot aboon the mill ;  
 And peacefu' rose its ingle reek,  
 That slowly curled up the hill.

But now the cot is bare and cauld,  
It's branchy shelter's lost and gane;  
And scarce a stunted birk is left  
To shiver in the blast it's lane."

Let no man see in the roofless walls of demolished human habitations evidences of the "prosperity" which consists in consolidating a number of small tenements into one great farm. Yet, surely it is reason, and not feeling or imagination, that sees in these miserable scenes, not only the departure of an ancient race, but the coming ruin of the country which they leave. A voice is heard from the midst of our household gods: "Arise, and let us go hence!" We do not envy the imagination that knows no warning in that voice. We have no respect either for the head or the heart of the man, who sees without dismay a whole people leaving the homes of their ancestors.

The reclaiming and culture of small pieces of land by means of the spade and other implements of manual labour, are usually spoken of under the name of spade husbandry, but are also sometimes called cottage farming, or field gardening—the operations of the culturist bearing an intimate resemblance to those performed in ordinary gardening. The apparatus supposed to be employed by the cottage farmer is simple and inexpensive. It consists of two or three spades of different sizes, a pickaxe, three-pronged digging fork, hoes, rake,

light harrow which he can draw, scythe, reaping hooks, hay-forks, flail, wheelbarrow, &c., according to means. It is of great importance for the cottage farmer to be able to sharpen or mend his tools, and for this purpose he should have a grinding-stone and small forge, also some carpenter's tools. No horse or paid servant is kept. All the work is done by the manual labour of the farmer and his family. The only live stock is a cow or cows, pigs, and poultry. The homestead consists of a cottage with several apartments, a cowhouse, pigsty, and barn. The size of the farm is supposed to vary from six to eight acres, and to be laid out in four or six distinct fields, properly fenced.

With reference to the comparative value of spade husbandry, it is an indisputable fact, that a garden produces heavier crops, space for space, than a field under ordinary culture with the plough. In regard to difference of produce, an experiment was tried in the neighbourhood of Hamilton, expressly to ascertain this point. A field was taken which had been cropped with beans the preceding year, and the previous year with oats. Two ridges were dug, and two ploughed, alternately, and the whole was sown on the same day. A part, both of the ploughed and dug, was drilled with the garden hoe. The whole was reaped the same day, and, being thrashed out, the result was, that the dug land sown broadcast, was to the ploughed sown broadcast, as fifty-five bushels to forty-two; while the dug and drilled was



as twenty and a quarter bushels to twelve and a quarter upon the ploughed and drilled. The additional grain produced was not the only beneficial result gained by digging; for, in this instance, there was also a great deal of straw, and the land was much more free of weeds, and more easily cultivated in the following year.

Some soils, however, are unsuitable for spade husbandry; as, for instance, heavy wet lands, liable to inundation; stony, gravelly, or shallow soils, more especially if incumbent on chalk. Manual labour is also inapplicable where the climate is precarious, and it is necessary to be expeditious in tilling the land, and in sowing and harrowing for a crop. On these accounts, spade husbandry cannot be universally resorted to with advantage, either to the culturist or the community.

The success of the allotment system is highly gratifying, but in many places the benevolent people who are promoting it by letting small pieces of ground, seem to have taken especial care of themselves. Now it is a very cruel thing to impose upon the poor creatures who take small allotments at a rental of 1s. per rod; and this, which is at the rate of £8 an acre, prevails in many places, and is a good deal too much. There is something odd in seeing gentlemen at a meeting insisting upon the advantages of promoting industry among the cottagers by the creation of small gardens, and, afterwards, parting their acres, which are worth from

£1 to £3, into small allotments at the rate of £8! If those who now demand a shilling a rod really wish to serve the cottager, let them at once reduce it to half; for a poor man, whose labour is his only property, can as ill afford to pay £8 an acre as the farmer who employs him. If this be not attended to on the part of the benevolent landlords, it will become a duty to expose a system so fraught with evil. It is the same kind of offence, in the moral scale, as charging double price for anything the poor man cannot do without, and it is discreditable to make a profit of his prudence. Still there are many who would rather give land rent-free than charge too much. The cottage gardener cannot be too freely encouraged; parishes should procure ground, and allot it at low rents, if they have none of their own to divide, for men are never idle in the strict sense of the word. They must be doing something; when they are not earning money, they are spending it, unless they find some inviting occupation; and there is no better test of a man's industry, frugality, and general disposition than a little garden. How very desirable, then, is it to encourage such industry by every means in our power, instead of imposing upon it a tax of double rental!

In a garden no rod of ground should ever be idle. If a man who is naturally lazy has not kept his ground well cropped, he may have his excuses about laying fallow, ridging it in winter to mellow the soil, or leaving it rough that the frost may get into

it ; but there is no occasion for all this,—the soil does not require rest ; change of work is a holiday to man, and change of crop is all that any ground needs ; for no two crops require the same kind of feeding, and consequently, by changing from one which requires high feeding of one kind to another which requires no feeding, or feeding of another sort, the ground continues at work without being exhausted. If ground has been used for carrots, parsnips, or beet-root, it may be immediately cropped with lettuces, or some crop which has no tap-roots. Turnips, also, and potatoes, may be followed by peas. Very little attention (if that be properly devoted) will be necessary to prevent ground being wasted, or crops being out of place. When a garden is wanted for a family, and economy rather than variety is to be consulted, we are quite sure that asparagus, sea-kale, and similar expensive things, ought not to be undertaken. The first object is plenty ; the second object is the choice of those subjects which last in the ground, or preserve well, when taken off. Potatoes are a first consideration ; onions, carrots, parsnips, and beet-root are next ; and Jerusalem artichokes are not to be forgotten, because all these are capable of being stored for months after they are taken up ; then, of those which last a long time in the ground, and afford a constant supply, scarlet beans, cabbages, winter spinach, and savoys are the most worthy of a cottager's attention ; but broccoli (except the sprout-

ing, which is hardy and useful), cauliflowers, peas, and other vegetables, which yield less produce on the same ground, by reason of the greater quantity of room they take, or the longer period of remaining on the ground, must be considered as luxuries. Everybody with a garden must consider the circumstances under which he has to cultivate it. If he has more ground than his family require for their supply, care must be taken to have the surplus of a useful and marketable nature, such as are always saleable, and if not bought on the ground, capable of being preserved for some time. All the articles mentioned in the first instance are of this nature. Potatoes, carrots, parsnips, beet-root, onions, and such like subjects, when ripened, will keep, and are always in request; whereas to overgrow any perishable crop is unwise, because they will bring nothing, as when one person is overdone, most people are in the same predicament. There are some seasons in which it is better to sow for main crops, but in a general way it is better to have different sowings, and not too large, because all will frequently come in together, and so in a few days all be gone by.

The most useful and nutritious of all fruit is the apple, and it is the first a cottager should seek to grow. Roasted without any accompaniment, it is, without exception, the best thing to give children for their morning and evening meals, and far more wholesome with bread than butter is; or two or three dozen may be baked on a tin, and some may

be always kept ready, for they keep many days without damage. The best sorts, perhaps, are the Hawthornden, which is a heavy bearer ; the Ribston Pippin, which is the best eating apple uncooked, and an excellent keeper ; and the French Crab, which will continue good until apples come in season again. According to the size and nature of the garden, they may be grown as standards, drawfs, or espaliers. Standards will, in the course of time, grow longer and bear more, but they damage the under-crop more or less in proportion to their size, whereas espaliers do but little harm. Dwarfs are the most objectionable, because they spread close to the ground and occupy it a good way round, to the entire exclusion of everything else. Upon the whole, perhaps, standards are the best. If they are planted well, they will soon come into bearing ; but it will be very desirable to regulate the form of the heads the first two or three seasons, so far, at least, as to preserve the branches that grow outwards, and remove those which grow inwards, and cross one another, for if these be neglected while young, the head fills up with barren branches, which prevent the sun and air from free access to the fruit. Standard trees ought always to undergo pruning, although not so particularly as wall-fruit trees, in which every shoot is regularly placed ; they are all the better for having useless branches cut out, and also branches that are growing too vigorously for the rest of the tree. For present use the Haw-



thornden will be ready as soon as the fruit is large enough, and by the time they are all used, the Ribston may be begun; but these will keep for months; and after they are gone, the French Crab, which will continue hard and firm half-way through the next summer, may supply the family till apples come again. Pears, though not quite so economical, on account of requiring sugar, are nevertheless a wholesome change of fruit for children, and the proper culinary varieties will keep for many months. They may be stewed with a little coarse sugar and spice, and are a great treat for a family. Like apples, they are an excellent accompaniment to bread for young people. The common baking pear is the best in all respects: first, because it is not eatable without being cooked, and, therefore, children will not injure themselves, as they might, by eating too many of the more choice sorts; secondly, because the trees are great bearers; and lastly, because they keep a long while, and make a good change for a great part of the year with the apple. Gooseberries and currants are general favourites. These give very little trouble. If they are planted young, with only two or three branches, cut them completely back to two or three eyes, all of which will make branches if allowed to grow; but as soon as they shoot, look to the direction they are taking, when any that grow inwards should be rubbed off, and about half-a-dozen that grow outwards and form spreading branches may be allowed to grow.

In pruning all the side branches are to be cut close off, because the fruit comes finest when the main branches are spurred, and the end of each branch is to grow until it is as long as you wish it to be; the inside of the bush is thus kept open, and admits sun and air, which forward the fruit very much. This must be continued every year, so that after pruning all the bushes are mere skeletons, but they will bring finer fruit and ripen it better for this close or spur pruning. The currant and gooseberry bushes are both pruned alike. There are many who only shorten the lateral branches a little, but they ought to be cut in to a quarter of an inch. Both currants and gooseberries may be raised from cuttings, so that a cottager need not buy them ready grown. At the pruning season he may get the cuttings of any neighbour who can spare them. If people planting orchards would give orders to mark the north side of trees with red chalk before they are taken up, and when set out to have the trees put in the ground with their north side to the north in their natural position, a larger proportion would live. Ignoring this law of nature is the cause of so many transplanted trees dying. If the north side is exposed to the south, the heat of the sun is too great for that side of the tree to bear, and therefore it dries up and decays.

A hive of bees, too, ought to be kept by cottagers. It is like a sum deposited in a Savings Bank—it will pay good interest if the original

stock is preserved; in fact, if properly managed, bees ought to pay a cottager's rent, and much more than that if he has three or four hives. There is no occasion to kill a single bee in a hive if the owner of it will content himself with a certain portion of the honey contained in it. Recollect that a hive properly contains 30,000 working bees—industrious insects—who are at work both night and day. If these are destroyed—and it is great cruelty to do so—your stock of bees cannot be increased; whereas, by allowing them to swarm, another hive is added to your stock. It is well known to be a great advantage in bee management to have early swarms, as they become strongly established stocks, well furnished with combs and honey, before winter; whereas, late swarms often succumb to the rigours of that season, or must of necessity be broken up in autumn. The popular saying is—

A swarm in May  
Is worth a load of hay.  
A swarm in June  
Is worth a silver spoon.  
A swarm in July  
Is not worth a fly.

The plan adopted in New York State in wintering bees is to let them remain in their summer quarters, and protect them either by an outer hive or by surrounding the hives with hay or straw. This cover-

ing is arranged as follows :—Place the hives on low stools, from six to twelve inches high ; drive stakes into the ground, two on each side of the hive, large enough to support the hay and long enough to reach about four inches above the hives when driven into the ground. Stuff the hay around the hive firmly on all sides, and cover the top of the hive with hay ; then tie the tops of the stakes together, remove the hay from the passage-ways, and place a board in front of each hive to darken the passage-ways. Bore an inch augur hole through the stand to admit air.

In these days of emigration it is impossible to rate too highly a knowledge of gardening, for a young man starts with little more than a grant of land, and what good can this grant do him unless he knows how to turn it to account ? It would be to him worthless. Whereas, if he knew but the rudiments of gardening, he could make it produce enough food for himself and family, if he had one, besides laying by something. It may be said he could take out books that would direct him what to do, but he would have to read and learn after he got out, instead of being ready for his work ; and an emigrant, to do any good for himself, ought not to lose an hour. Besides, at school, the operations of gardening would be a relief from drier studies, and a lesson in practice would be better than twenty readings. The Duke of Northumberland, in his school at Alnwick, not only provides this instruc-

tion, but gives prizes annually for the best produce, and has created among the objects of his care a great amount of emulation and enthusiasm. Turn these boys, when they are old enough, out in a wild waste in Australia, and they would go to work without having to study. They know how to dig and trench, and sow and plant, as well as they know how to eat the produce; and school education should not go beyond this. It is like other education for the people. The poor should be taught reading, writing, and arithmetic. This puts them in the fair way for learning or self-teaching all that their genius, if they have any, can desire. These common qualifications fit a youth for business; if his genius fits him for higher things he will soon acquire the rest of himself. So it should be with school gardening, which should never go further than the management of the open ground and hardy crops.

In the life of the farmer, as in that of every other man, it is of the utmost importance to make home attractive to all the family. It is unnecessary to say that the strictest neatness and good order in all domestic arrangements are more conducive than anything else to this end. Without them no dwelling can have an air of cheerfulness and comfort. The cultivation of flowers in the house and the garden is well calculated to aid the skilful housekeeper in adorning and beautifying home, while it affords a pleasant occupation for leisure hours.



Who does not feel the influence of flowers blooming in the window, and in the neat beds of the garden or the front yard? Graceful vines trailing over the doorway give a charm to the poorest dwelling, and make the humblest cottage attractive.

Let not the adornment of our country gardens be overlooked, however small they be. What a sweet page of rustic lore is there! Who does not love the lone cottage, embosomed in the dear old garden which has something sacred in its homeliness? We find a charm in its hawthorn fence, its stocks and sweet-williams, and its pretty flowers with their gentle names and gentler memories. What more lovely than the sweet blossoms glistening in the sunlight? What more delightful than the neatly-drilled beds of peas and beans, the tufts of sage and rosemary, and other plants esteemed medicinal by their cultivators, with the robin-redbreast's corner, where the poor bird loves to hop about midst thymy leaves and honeysuckle? One of the greatest of all the sources of enjoyment resulting from the possession of a garden is the endless variety which it produces, either by the perpetual progress of vegetation which is going forward in it to maturity, dormancy, or decay, or by the almost innumerable kinds of plants which may be raised in even the smallest enclosure. Independently, however, of the changes resulting from the plants cultivated, every month throughout the year has its particular interest, its hopes, and its fears. Nay, it would

not be too much to say that during six months of the year a change takes place and is perceptible in the plants of a garden every day, and every day has in consequence its operations and its products.

A great deal has lately been said of French agriculture, and comparisons have been made with the English system of cultivation, highly adverse to our continental neighbours, but any one who has travelled through France must acknowledge that the land is remarkably well cultivated. Unquestionably small farms are made much more productive in France than in England. Throughout Normandy not an inch of ground is wasted. True, the land is in small plots, but these plots are cultivated with the same diligence that a London market-gardener bestows on his holdings at £14 an acre. Many who have not visited France entertain a very erroneous notion of the system of farming. They suppose that, because land is in such small holdings, the owners are so poor that women are brought out to do the labour of men and beasts. But such is really not the case. It is true that women and children work, but it is becoming work, such as the raising of poultry and flowers for the markets, and other occupations of the English farmer's wife of the last century. The French farmer looks after his fruit, his poultry, his eggs, and the minor articles of produce of which our rich English farmers take no heed, and thus, through the small holdings, the land is rendered far more productive than if it were

thrown into larger farms. The French peasantry seem a well-to-do and contented people. You see no drunkenness, no extreme poverty. They live frugally and become self-dependent from having the management of their own affairs, and not living in a state of servitude. This extensive application of industry to the cultivation of the small plot of land bestows a pleasing and fertile aspect on the country, and gives it the appearance of a series of gardens.

Economically speaking, large farms yield a larger surplus than small ones, after paying for the labour expended upon them. But they sustain a much smaller population, and it seems to us worthy of consideration, whether what is called the agricultural interest would not, in a political point of view, become more powerful by an increase instead of a decrease in the number of persons dependent on, and sustained by, agriculture. This can be done only by decreasing the size of farms, and thus giving an opportunity to agricultural labourers to rise by prudence and industry into small farmers, instead of becoming parish paupers or beershop-keepers in their old age. In the meantime the labourer should emancipate himself in mind and body, and learn more self-reliance. Let him look at the list of births, deaths, and marriages, and see what a large portion of the upper and middle classes have to seek their fortunes in every quarter of the globe; and he may perhaps acknowledge that it is not by sit-

ting down in his own parish and looking to others for help that the labourer, more than any one else, will ever improve his condition. There can be no royal road upwards for the labourer more than for any other man.

A gentleman in Ireland, after visiting East Lothian, makes the following comparison between farming in that district and farming in Ireland :—

Incredulous as to the statement of the Lothian farmers, of 600 Scotch acres, paying £2400 a-year in labour and manures, besides pretty high rents—£4 to £5 per imperial acre—when compared with the same quality of land in Ireland, we thought it as well to pay one of these gentlemen a visit ; and, though doubtful before seeing, facts, which are stubborn things, proved the truth of their statement. At dinner, at one of their tables, four or five neighbouring farmers were guests, each averaging 600 to 650 acres, and all high farmed. The furniture, houses, and mode of living of these gentlemen were on a par, or rather better than those of the small proprietors in Ireland, between £800 and £1200 a-year, though paying high rents on nineteen or twenty-one years' leases. The farm cottages for labourers, numbering twenty to thirty on each holding, were very comfortable, equal to those in any part of England, while the houses of the steward and the shepherd on each, were of a superior class. We did not visit the bothies, where the unmarried live, but the men and women have

separate houses; all seemed very healthy, comfortable, and well clad and shod. During the harvest, about 150 men and women had been employed; but the reaping and mowing machines have enabled the farmers to do their work with 100, and yet their crops and hay are saved earlier. Three of the gentlemen at dinner had steam ploughs, and they all thought that with some improvements steam must be generally used on the farms of 200 acres and over. The crops were nearly all housed on the "high farms," guano and superphosphate bringing them in much earlier. The potato crops were very good—no failure—and the price asked was £27 per imperial acre. Now, as each farmer of 650 acres had 80 to 100 acres of potatoes sold on the spot at £27 per statute acre, £2100 to £2700 on a single farm for potatoes alone would astonish those unacquainted with "high farming;" but twenty-six years ago these gentlemen only grew them for family use. The railroad has, however, served them, the rates to London in waggons without bags being only 25s. per ton for 430 miles, or equal to 12s. per ton from Cork to Dublin. When will the railways give these facilities to Irish farmers? They are carried proportionally cheap to Hull, Newcastle, Glasgow, and Manchester, the buyers coming, so that the farmers need not look out for a market. All the crops were good except turnips, which had in many cases to be sown three times, and will only produce half an average return.



Wheat good. Barley fair. The great complaints the farmers have here are of the Game Laws ; game being so strictly preserved are numerous and destructive. Wood pigeons, though not game, are especially so, and it is a matter of surprise that the proprietors do not make their gamekeepers destroy their nests as they do those of hawks and magpies. This would be of great benefit to landlord and tenant, while causing little cost to the proprietor. No doubt the East Lothian landowners, when aware of the injury, will do everything to rectify it. Our host, on a twenty-one years' lease, tile-drained his farm, and put an addition to the dwelling-house, costing £1200, though at the expiration of it he may have to pay for his own improvements ; but Scotch tenants put the capital into the land as the best bank, and will not lend it to needy proprietors, as the Irish farmers do, at five or six per cent., while the proper cultivation of their farm will return them fifteen to twenty. Scotch farmers, on expiry of their leases, do not look on another gentleman entering the farm as an intruder, or "taking it over their heads," but the outgoing and incoming tenant meet on the best terms, and settle matters amicably, without, as in Ireland, a threatening notice with a coffin roughly drawn beside it. It is difficult to understand why in England and Scotland landlords and tenants can make their own bargains, let or resume their lands, without the interference of third parties, who in Ireland will give powder

and shot for the supposed grievances in matters they had nothing to do with. The Highlander is as much a Celt as the Patlander, and yet he employs no Ribbonmen to shoot the party who takes his crop, or farm, or the landlord who lets it; nor are Ribbon lodges held in Ross, Inverness, or other counties where the Gael has been evicted much more summarily than in Ireland. How, then, is the love of the Irish tenant of shooting landlord, agent, bailiff, and the gentleman who takes the place over another to be accounted for? "*Adhuc sub judice lis est*," and we leave the question to more learned men to decide. In these farms of 650 acres all are in tillage—either grain, green crops, and one or two-year-old pasture, with only a dozen of acres around the farm-house in permanent grass, gardens, steadings, offices, &c. We would advise all our agriculturists to visit the east of Scotland, and see how farmers, paying from £2 15s. to £3 11s. per imperial acre, can make money, and live like gentlemen, after expending £2 per acre on guano and £2 on labour. The Lothians are fine land, but not so rich as Meath, Roscommon, Tipperary, or the Golden Vein. We believe that Ireland's great want is not the want of a more cordial understanding between the landlord and the tenant, but simply the want of a better system of farming. This want has been of late years slowly and gradually supplied; and the improvement of the system was naturally followed by increased prosperity, until the

late disastrous succession of bad harvests dashed to the ground, for a time, the rising hopes of the farmers. It is much easier to point out the causes that have contributed to reduce the small farmer to his present depressed condition, than to apply a remedy. One thing is certain, that there is no infallible specific, no universal medicine, no wonderful restorative, that will infuse new life into the decaying frame of the small farmer. Are we, then, to leave him to perish, or to sweep him away, to make room for the large holder? Certainly not. It is our plain duty to deal with the soil and its inhabitants as a great trust, for which we shall have one day to render an account; and to sweep away the living human beings, is to refuse the most important and serious part of the trust committed to us. The task of improving the condition of the small Irish farmer, requires not only a practical knowledge of farming, but patient, watchful, unwearied attention. It will be a work of time and labour; but as long as the work progresses we must be satisfied. The farmer's truest friend is the man who will teach him, both by precept and example, the best way to cultivate his land, and will give him a helping hand in adverse seasons and times of difficulty; and that man is his landlord.

A very important matter which has to be settled by the Land Agent is the due regulation of the rent. The term rent is applied to the share which the landlord receives of the profits accruing from

the working of the land, as the interest of that species of capital. It is also applied to mines, fisheries, forests, water-courses, houses, and patents. It is also applied generally to the purchase for a limited time of the use of such property, even when no profit is intended to be made, as in the case of dwelling-houses, houses in the country, shooting grounds, &c. Hence, rent only arises when the property in question is lent out to some one. When the owner of the article uses or works it himself, there is no such thing as rent, any more than when a man trades with his own money, can there be any such thing as interest. In ancient times, the rent was given in kind and in personal service—the tenant yielding so much produce to the lord, and doing his work in conveying fuel from the wood or turbary, in reaping his corn, making his hay, and rearing animals and poultry for his use. These in time were converted into cash payments, and the letting of land and paying for its occupation assumed the character of a commercial transaction. By reason of the great fluctuations in the price of grain, and of the consequent value of land, of late years a partial return has been made to the old system—not of actually paying rent in kind, but of converting it into the money value of a certain amount of produce, according to the average price of the time, which is called “a corn rent.” This has not proved generally satisfactory to the tenant, for when prices are low little remains for

his profit, and when high, as now, enabling tenants on money rents to receive a good surplus, he finds himself giving a high rent to his landlord, and making much less to himself than his neighbours are realizing. There can be no doubt that money is the most convenient medium of exchange, and the best representative of value, and that those tenants act the most prudently who are *careful of their profits in good times*, to be prepared to meet others less favourable, or who, having security of tenancy, lay them out in improving and enriching their land, so as by an increase of produce to be able to meet a fall of prices.

To many persons it appears an inequitable arrangement that the tenant should pay a fixed sum to the landlord, whatever be the price of corn, which is notoriously an article whose value is of the most fluctuating description. And no doubt to persons who are not much acquainted with the subject, the metayer system may appear to be more equitable. But it is not found to be so in practice. Payment of rent in kind used to prevail to a considerable extent in Scotland. In many parts of the country there are still to be seen large buildings, in which the farmers used to store the rents of the landlord. But the unfortunate landlord of course got the worst part of everything. And as civilization advanced this payment of rent in kind was universally abolished, and a payment in money substituted. Now, as the people have universally abandoned a



payment in kind, and substituted a payment in money, it is the best proof that can be had that the latter method is more practically convenient than the other. But even though the payment in kind of a portion of the produce has been abandoned, and the payment made in money, many schemes have been devised to ensure what appeared to be a more equitable division of the profits between landlord and tenant, according to the varying price of corn. And different modifications of this system, which is generally called "corn rents," are in favour in this country. It is necessary to observe the distinction between the system of metayers and corn rents. The former is a division of the actual produce of the soil between landlord and tenant, the latter is a payment in money, but varying according to the price of corn. While, in some parts of this country, opinion is much in favour of corn rents, on the other hand, in many other parts of the country which are in the highest state of cultivation, and where the highest science prevails, corn rents are held in utter abhorrence, and opinion is equally tenacious of fixed rents.

Mr. Alderman Mechi expresses himself strongly on this important subject. At page 57 of his most valuable work, "How to Farm Profitably," the worthy Alderman says:—"I am decidedly of opinion a long lease and a corn rent (regulated by the rent-charge for tithe) and a valuation of tenants' improvements to the incoming tenant, are indispen-

sable as a basis for leases. Some say, ‘Oh, a landlord does not like a variable rent.’ Well, but are not all classes of income variable with circumstances? Where is your five per cent. Government fund annuitant? Why, *nowhere* in that character: but we find him grumbling or contented with three and a quarter. Your shareholder in canals, with ten per cent. to-day, finds to-morrow the railways have reduced him to five. Where are your holders of road-trust bonds? Their capital annihilated and the traffic transferred to railways. It is the same in trade, commerce, and manufactures, one year thriving, another losing; and so with the farmer himself, his wheat £20 this season, and £10 the next. Then, pray, why is the landlord to be placed in a different position from all the world beside? Your landlords of houses find their property improved by a church or swept away by a railway, or their dearly-built old houses rendered tenantless by new ones, more fashionable, more commodious, and cheaper, being built when timber, iron, and labour happen to have fallen forty per cent., the manufacturers being depressed. There is nothing certain in this world—all is movement and change. Neither landlords nor tenants can escape the vicissitudes of circumstances any more than other classes of Her Majesty’s subjects.” Every landowner and farmer in the country should peruse all Mr. Mechi’s writings on agricultural subjects, because they are thoroughly practical. The worthy Alderman has

devoted the best portion of his life to the cause of agricultural progress; like all earnest men, he has occasionally ridden his hobby rather hard, but he has lived to see very many of his opinions accepted and adopted by those who in earlier days were wont to ridicule his advice; and he may well derive consolation from the conviction that his efforts to benefit his fellow-creatures have not been in vain.

Many persons ask, What is a fair return for capital invested in farming? As a general rule, 10 per cent. on the capital invested is considered a fair profit. However, there are thousands who do not realize even the half of it. We know that there is a wide diversity of opinion on this very important subject. There are, in fact, so many different modes whereby a conclusion is arrived at. A says, I calculate the expected income or produce of a farm, and take the probable amount of disbursement, making one of these a charge of £5 per cent. for capital employed, as well as the rent required, and then see what amount shall be left for house-keeping expenses. B calculates the expected income as before, and making his disbursement to include only rent, declares the farm not worth using unless there be one rent left for him. These are *tenants'* methods of calculating, and are fallacious, inasmuch as they must ever give a capricious rate of interest for capital: the first depending on the domestic habits and associations of the tenant as to the amount necessary for his purpose; in the

last, making the rate of interest to depend not on the amount of capital employed, but on the quality of the land employed upon, as every one must see, it would take more capital to stock an equal rental on poor than on rich land.

Every one is aware that the interest made of a farmer's capital is not so large as the generality of traders, because the risk is not so great in his having to trade only in a wholesale commodity in a ready money market, and he has consequently few if any drawbacks in the shape of bad debts, like other traders; yet, on the other hand, it should be considered that it is a capital completely locked up, so much so, that should loss follow it will not be a small one, from the time it takes to retire from business of this nature. For this reason, he is peculiarly sensitive of the influence public opinion on laws affecting his trade has upon his property; like other traders he can see the storm gathering, but unlike most others, he has no means of securing even a portion of his property from its effects. These seem the most prominent risks, besides those casualties a farmer has frequently before his eyes in losses of stock and unpropitiousness of seasons not to be guarded against, and for which we would place a charge of three per cent. The last question is much more difficult, and opens a wide field for discussion.

It is curious to note how rents were paid in ancient times. In the beginning of the eighth

century, Ina, King of the West Saxons, enacted a law by which "ten hides or plough-lands" constituting a farm was to pay the following rents:—Ten casks of honey, three hundred loaves of bread, twelve casks of strong ale, thirty casks of small ale, two oxen, ten wedders, ten geese, twenty hens, ten cheeses, one cask of butter, five salmon, twenty loads of forage, and a hundred eels. A hide of land was variously estimated at from 60 to 120 acres. It is also curious to notice the large tracts of land necessary to support the households kept up in the baronial halls of olden times, and the number of manors possessed by the Norman nobles after the Conquest, as compared with properties of the present day. The elder Spenser, in a petition to Parliament, about the year 1580, complaining of outrages upon his property, states his moveable effects to be 28,000 sheep, 1,000 oxen, 1,000 cows, 500 cart horses, 2,000 hogs, 600 bacon, 80 carcasses of beef, and 600 sheep in the larder, 10 tons of cider, and arms for 200 men. Earl Moreton became possessed of 793 manors; Hugh de Alrinsis obtained the whole palatine of Chester; Allan, Earl of Britanny, 442 manors; Odo, Bishop of Bayeux, 493; William, Earl Warren, 288, besides 38 towns or hamlets in Yorkshire; and the large county of Norfolk was divided amongst 66 proprietors. The owners of these large properties resided almost entirely upon them, except when engaged in war, and usually held the land in their occupation.



We gather from that able and excellent paper the "Pall Mall Gazette," that the acreage of land under cultivation in Great Britain during the past year, as shown by two Government returns recently issued, corresponds very closely, all circumstances considered, with the estimate made by the commissioners of the census in 1851. Fifteen years ago there were 29,213,312 acres "under culture as returned by the farmers." Against this we had in 1866, 28,704,867 acres; but the Board of Trade exclude farms of less than five acres each; and in England and Wales alone at the earlier period named we find 7,656 holdings falling under that category with an aggregate superficies of 19,140 acres, or an average of  $2\frac{1}{2}$  per farm. We cannot say how many farms in Scotland were in 1851 counted under five acres each, but we know that "in Scotland," following the report of the commissioners, "there is at once a great excess of *small* and of *large* holdings." Another possible course of divergence is revealed in the fact that the statistics of last year expressly left out of account "hill pastures," and there is nought to show that the same omission was made in 1851. Apropos of small farms, we note in the occupation census of the last-named year that there were in England and Wales not less than 91,698 farmers who employed no labourers, *i.e.*, worked their lands, it is to be presumed, with their own unaided labour. What was the average extent of land tilled or tended by those single-handed husbandmen is not

shown. In England and Wales the farms in 1851 returned a collective area of 24,905,758 cultivated acres; in 1866 the acreage "under all kinds of crops, bare, fallow, and grass," was 24,546,507. In Scotland the corresponding and respective quantities were 4,188,578 and 4,158,360 acres. Thus England and Wales apparently differ with regard to agricultural surface by 359,000 acres, and Scotland by 30,000 acres; or, assuming that the returns made at the two periods are "upon all fours"—which they certainly are not—England and Wales has lost 1.4 per cent. and Scotland 0.7 per cent. of their food-producing space.

A comparison of the corn-producing areas of Great Britain and Ireland with acreage dedicated to similar purposes in a few of the larger and several of the smaller continental states, will prove very interesting.

Taking the facts as presented in the tables, and computing on the basis of population, the relative capacities for the growth of grain of the countries in question, we arrive at the following results. The states are ranked according to the proportionate extent of surface in each that is under corn crops, *i.e.*, wheat, barley, oats, rye, beans, peas, mixed grain, buckwheat, and other kinds of grain. The order of precedence is determined by the ratio of corn-cropped acres to every 100 of the population in the respective countries. For conciseness of expression the figures placed immediately after the

name of each country represent the total acreage under culture of every description, including permanent pasture and fallow ground: and the second column of figures the proportion of corn crops to the given standard of 100 inhabitants:—

	Total Acreage.	Acres of corn to 100 souls.
Denmark (proper) . . . .	5,446,000	141.3
Italy (including Venetia) .	43,525,000	110.8
France . . . . .	97,506,000	104.1
Bavaria . . . . .	11,138,000	95.7
Austria (excluding Galicia)		
— Cracow — Bukowina,		
the Tyrol, and the military		
frontier . . . . .	58,408,000	77.4
Sweden . . . . .	10,998,000	72.4
Wurtemberg . . . . .	3,010,000	70.7
Switzerland . . . . .	4,963,000	56.6
Belgium . . . . .	4,521,000	52.0
Great Britain . . . . .	28,705,000	40.1
Ireland . . . . .	15,550,000	37.4
Holland . . . . .	5,024,000	36.3

The Irish cultivated acreage is *inclusive* of hill pastures. These, however, are excluded from the returns of England and Scotland. This unfairly depresses the ratio assigned to Ireland in comparison with the figures for Great Britain. That the comparison may be equitably adjusted between the United Kingdom and her continental neighbours, vineyards and olive grounds are excluded. Grain of an inferior kind is largely grown on the

Continent that is only produced in this country in small quantities, like rye, or which the British farmer does not cultivate at all, like buckwheat. In Bavaria more than a fourth of the land under corn is covered with rye—1,461,000 acres out of 4,601,000; the whole quantity grown in the United Kingdom was but 68,000 acres. Measured upon the aggregate of all sorts of grain, France, as we see above, holds nearly a triple trio to Great Britain, but, computing the proportions upon wheat, barley, and oats alone for both kingdoms, the ratio for the former country is 76.9 and for the latter 36.2 acres per 100 souls. Half the land in Austria under corn (13,000,000 acres) yields an inferior grain that finds no place in the English returns.

Some curious facts are noticeable with regard to the quantity of “bare fallow or uncropped arable land” in the different countries. For example, the quantity under this head in the United Kingdom is stated to be 1,004,000 acres, or 1 in every 44 acres under culture of every description. In Denmark it is 1 in 13 nearly. In Bavaria, where the tables give 1,172,000 acres as fallow, it is 1 in 10; and in France, to which is ascribed the enormous uncropped arable surface of 14,091,000 acres, it is 1 in every 7 acres; otherwise expressed, 1 acre of fallow to 6 acres under crops of one description or the other. The statistics exhibit these figures as the exponents of quantities exactly comparable, but are they really so? They are all presented in the same

category—neither qualification nor explanation is appended. If the apparent is the actual truth, then the French cultivator in the practice of his art leaves six acres lying idle, while our own farmers manage their rotations with one. Allowing for permanent pastures in one of the factors of our estimate may reduce, but will not destroy, these divergencies; we have one-half of our cultivated space, and France but one-third of hers, dedicated to that branch of husbandry.

Of green crops Great Britain and Ireland are the favoured field. Here we count 5,055,000 acres under culture, while France, with nearly twice the extent of territory to that which lies within the boundaries of the United Kingdom, has 4,318,000 acres allotted for similar productions. Bavaria possesses 1,018,000 acres of green crops, and Belgium 709,000, both quantities comparatively great. Austria has 1,809,000 acres, a quantity relatively small, one-eightieth of her whole domain; the Belgian ratio being one-tenth.

The growth of property and profit in the United Kingdom, 1815–1865 is very interesting and remarkable. A parliamentary return has been issued, which shows for a series of years the land rental—that is the valuation on which farmers' profits are assessed—for each county of Great Britain separately. By means of this document the amount and the rate of increase in rent during the ten years terminated with 1865 can be com-



# 174 COMPARATIVE STATE OF RENTAL IN SCOTLAND.

## COMPARATIVE STATE OF RENTAL IN SCOTLAND AT THREE PERIODS— 1791, 1841, AND 1866-7.

COUNTIES.	AREA.	1791.	1841.	1866-7.	REMARKS ON VALUATION OF 1866-7.
	Acres.	£	£	£	
Aberdeen.....	1,260,625	132,692	400,630	652,889	Exclusive of railways.
Argyle .....	2,083,126	106,567	227,493	357,432	[railways.
Ayr .....	650,156	159,672	417,900	891,942	Valuation for 1865-6, including
Banff .....	439,219	42,768	99,000	184,021	[railway.
Berwick .....	309,375	105,864	220,986	330,238	Valuation for 1865-6, exclusive of
Bute .....	109,375	10,000	23,000	42,133	Exclusive of the burgh of Rothe-
Caithness.....	455,708	19,431	35,000	103,841	[say.
Clackmannan .....	29,744	13,751	43,217	78,242	Exclusive of railways.
Dumbarton .....	189,844	33,900	110,017	266,685	Valuation for 1865-6.
Dumfries .....	722,813	117,621	272,217	389,561	Exclusive of railways.
Edinburghshire .....	254,300	93,622	246,358	428,422	Exclusive of Edinburgh and
Edinburgh and Leith		130,000	700,000	1,196,715	[Leith and railways.
Elgin .....	340,000	38,258	88,174	177,764	Valuation of 1865-6 for Edin-
Fife .....	322,031	162,606	403,709	611,353	[burgh, of 1866-7 for Leith.
Forfar .....	568,750	117,721	279,973	473,809	Exclusive of railways.
Haddington.....	185,937	84,430	214,778	268,738	do.
Inverness.....	2,723,501	42,177	152,078	237,348	do.
Kincardine .....	252,250	37,636	120,000	195,993	Valuation for 1864-5.
Kinross .....	49,551	12,747	43,792	54,547	Exclusive of railways.
Kirkcudbright .....	610,734	101,515	210,000	289,779	do. [railways.
Lanarkshire .....	631,719	119,282	539,307	1,264,273	Exclusive of royal burghs and
Glasgow .....		2100,00	609,212	1,808,430	Inclusive of railways, 1865-6.
Lanlithgow .....	64,375	42,566	100,000	178,291	do.
Nairn .....	137,500	10,209	23,145	29,350	Exclusive of railways and canals.
Orkney and Shetland	988,873	26,330	52,000	78,193	Valuation for 1865-6, exclusive
Peebles.....	226,488	27,912	75,495	103,517	[of Kirkwall.
Perthshire .....	1,814,063	231,126	624,274	760,440	do. exclusive of
Renfrew .....	150,000	62,881	151,791	365,358	[railways.
Ross and Cromarty ..	2,016,375	47,968	126,137	210,991	Exclusive of railways.
Roxburgh .....	460,938	103,416	266,314	365,491	do.
Selkirk .....	170,313	17,323	46,000	81,304	Valuation for 1865-6, exclusive
Stirling.....	298,578	79,208	250,350	314,632	[of railways and canals
Sutherland .....	1,207,188	9,345	38,774	58,660	
Wigtown .....	326,736	46,644	135,810	183,962	

puted. A longer interval for comparison might have been taken from the paper, but the term chosen will sufficiently demonstrate that the landed interest has participated in the general prosperity of the kingdom. In the property-tax returns the gross assessment under Schudule B and the gross assessment under that part of Schedule A which represents "lands" only are the same; the one may be used for the other. The gross land rental of

England and Wales in 1854-5 was £41,068,000, and in 1864-5 it had risen to £46,404,000, or by an increase in the latter over the former year of £5,336,000, that is, 13 per cent. If the same extent of surface were under culture at both periods it would be correct to say that farm rents had risen 13 per cent., but there are no statistics to show this. Probably the breadth of land farmed in 1865 varies more or less from the quantity cultivated ten years earlier; if *more*, the rise in rent—the letting price per acre—would be less than 13 per cent.; if *less*, the rise would be greater than 13 per cent. An examination of the progress which the English counties have made will show that it has been very general; three or four counties fall considerably below the average rate of increase, but one only—Middlesex—experienced a decrease, an exception which need not surprise us. The novelty and importance of the information will be our justification for entering into so much tabular detail.

*Amount of Farmers' Rent assessed under Schedule B of the Property Tax in 1855 and 1865 compared for each County in England.*

COUNTIES.	Assessment under Schedule B.		Increase.	Increase per Cent.
	1855.	1865.		
South Eastern :—	£	£	£	
Surrey .....	471,714	560,486	88,872	18.8
Kent .....	1,413,983	1,633,255	219,272	15.5
Sussex .....	884,123	1,002,277	118,154	13.4
Hants .....	892,520	1,028,120	135,600	15.2
Berks .....	582,885	667,244	84,359	14.4

# 176 ASSESSMENT TABLE—COUNTIES OF ENGLAND.

COUNTIES.	Assessment under Schedule B.		Increase.	Increase per Cent.
	1855.	1865.		
South Midland :—				
Middlesex .....	406,135	388,574*	17,561*	4.3*
Herts .....	518,022	596,131	78,109	15.1
Bucks .....	635,732	720,200	84,468	13.3
Oxon .....	632,393	719,788	87,395	13.8
Northampton...	973,124	1,123,304	150,180	15.4
Hunts .....	294,466	354,537	60,071	20.4
Beds .....	384,433	442,141	57,708	15.0
Cambridge .....	835,875	978,998	143,123	17.1
Eastern :—				
Essex .....	1,289,678	1,597,135	307,457	23.8
Suffolk .....	1,224,895	1,371,335	146,440	11.9
Norfolk .....	1,747,013	1,939,626	192,613	11.0
South Western :—				
Wilts .....	1,053,030	1,161,656	108,626	10.3
Dorset .....	694,892	774,047	79,155	11.4
Devon .....	1,544,844	1,780,976	236,132	15.3
Cornwall .....	727,354	774,652	47,298	6.5
Somerset .....	1,672,498	1,852,522	180,024	10.8
West Midland :—				
Gloucester.....	1,137,952	1,290,056	152,104	13.4
Hereford .....	648,908	750,812	101,904	15.7
Salop .....	1,028,944	1,142,361	114,417	11.1
Stafford .....	1,048,637	1,165,802	117,165	11.2
Worcester .....	746,534	854,394	107,860	14.4
Warwick .....	880,901	986,151	105,250	11.9
North Midland :—				
Leicester .....	896,418	998,650	102,232	11.4
Rutland.....	133,040	158,375	25,335	19.0
Lincoln .....	2,482,967	2,820,542	337,575	13.6
Notts .....	744,474	874,411	129,937	17.5
Derby .....	805,310	903,160	98,850	12.3
North Western and Yorkshire :—				
Chester .....	997,591	1,112,561	114,970	11.5
Lancaster .....	1,616,161	1,713,828	97,667	6.0
York .....	3,946,191	4,431,864	485,673	12.3
Northern :—				
Durham.....	584,118	631,632	47,514	8.1
Northumberland	844,947	977,244	132,297	15.7
Cumberland .....	645,481	716,476	70,995	11.0
Westmoreland ...	254,623	303,240	48,617	19.1
Welsh :—				
Monmouth .....	307,865	334,379	26,514	8.6
South Wales.....	1,259,079	1,490,031	230,952	8.3
North Wales.....	1,178,198	1,310,880	132,682	1.3

\* Decrease.

A few words in exposition may be conveniently given to each division.

*South Eastern Counties.*—All enjoyed a rate of increase above the average; Surrey and Kent, the two metropolitan counties of the division, were more prosperous than the others, especially the former. The range of increase in the five counties was from 13·4 per cent. (Sussex) to 18·8 per cent. (Surrey). We add here, that Sussex, Hants, and Berks suffered a decrease in 1861, compared with 1851, in the number of adults occupied in agriculture, a decline which other counties named below likewise underwent.

*South Midland Counties.*—Middlesex decreased £17,561,000. The rapid extension of the metropolis north of the Thames, and the construction of new lines of railway which now intersect the county in all directions, could only have been effected by large sacrifices of arable and pasture land to those enterprises. Rather poorer in agriculture, Middlesex has gained in other directions out of all proportion to this loss. The remaining seven counties were each above the average increase. The lowest was Bucks, 13·3 per cent., and the highest Huntingdon, 20·4 per cent. Herts and Bucks decreased in respect of their agricultural population.

*Eastern Counties.*—The larger measure of prosperity which Essex obtained is remarkable; it was proportionately twice that which either Suffolk or

Norfolk enjoyed. Of the four Metropolitan counties Essex made the greatest progress. The rate in Suffolk and Norfolk was under the mean of the kingdom; the agricultural population fell off in both counties; the adults in Suffolk between 6 and 7 per cent.

*South-Western Counties.*—With the exception of Devon the progress in this division appears to have been less vigorous than in any other. The increase varies from 6.5 per cent. in Cornwall to 15.3 per cent. in Devon. The Cornish rate of increase was lower than any other in England or Wales, except that for Lancashire. The agricultural labourers of this division are the worst paid in the kingdom. The census of 1861 revealed a marked decline in their numbers; the adult population occupied in agriculture decreased in all the counties, but most in Devon, where it amounted to 9475 persons, or 13.3 per cent.; in Cornwall to 3917, or 10.5 per cent.

*West Midland Counties.*—Half the counties in this division are a little above the average, and half about as much below. The lowest increase was in Salop, 11.1 per cent., and the highest in Hereford, 15.7 per cent.

*North Midland Counties.*—Leicester and Derby were under the average, but not much; the other counties were more decidedly above it. The rate ranged from 11.4 per cent. in Leicester to 19.0 per



cent. in Rutland. In Lincolnshire, which is one of our largest agricultural counties, the increase was £337,575, or 13.6 per cent. in the ten years.

*North Western Counties and Yorkshire.*—These counties contain the principal seats of English manufacturing industry; though the rate of development in agricultural wealth be in this division less than the average, it is nevertheless under the circumstances of the district very satisfactory. Similar causes to those which in Middlesex produced a decrease have in Lancashire only effected a reduction in the rate of increase; the land rental of that county was in 1865 6 per cent. more than in 1855, or in amount £97,667. The largest absolute increase obtained in the three Ridings, where it amounted to £485,673; in ratio 12.3 per cent., or slightly under the average of the kingdom.

*Northern Counties.*—The range is wide here, for we have a low county and one rather high, from 8.1 per cent. in Durham to 19.1 per cent. in Westmoreland. Large mining, like large manufacturing operations, seem naturally to retard the agricultural development of a district; hence we find Durham to be greatly below the mean advance of the ten years. The per centages placed against Northumberland and Westmoreland show, however, that some of the northern counties have had more than a full share of agrarian prosperity.

*Monmouth and Wales.*—Monmouth is a mining and iron-manufacturing county; the rate of agricultural increase was low, *i.e.*, 8.6 per cent. South Wales developed her rental twice as fast; the increase was £230,952, or 18.3 per cent. The northern section of the principality was exactly 7 per cent. below the southern rate. The adults occupied in agriculture decreased 4530, or 5.6 per cent., in South Wales; and 7666, or 11.0 per cent., in North Wales.

Those counties which fall markedly under the average of increase are either Metropolitan, manufacturing, or mining; if we eliminate them from the table, the equable manner in which the remainder shared in the general good fortune which the figures reveal is unmistakable. In face of these statistics we cannot affirm that the decline of the agricultural population in several counties that the last census brought to light has hitherto had any depreciatory effect upon landed property.

The gross land rental of Scotland in 1854-5 was £5,745,000, and ten years subsequently £6,830,000, being an increase of £1,085,000, or 18.9 per cent. This exceeds the English rate for the same interval by 5.9 per cent.

To save space the next table has been restricted to twelve of the principal agricultural counties of Scotland—seven in the southern and twelve in the northern division of that country:—

*Amount of Farmers' Rent assessed under Schedule B of the Property Tax in 1855 and 1865, compared for the under-named Counties of Scotland.*

COUNTIES.	Assessment under Schedule B.		Increase.	Increase per Cent.
	1855.	1865.		
Southern :—	£	£	£	
Dumfries .....	281,949	342,187	60,238	21.4
Ayr .....	420,690	511,704	91,014	21.6
Lanark .....	320,809	386,010	65,201	20.3
Edinburgh .....	240,764	276,173	35,409	14.7
Roxburgh .....	244,043	284,053	40,010	16.4
Haddington .....	213,737	224,713	10,976	5.1
Fife .....	408,108	455,281	47,173	11.6
Northern :—				
Perth .....	529,216	618,763	89,547	16.9
Forfar .....	295,664	401,351	105,687	35.8
Aberdeen .....	474,233	570,020	95,787	20.2
Argyle .....	232,937	279,030	46,093	19.8
Inverness .....	183,664	191,881	8,217	4.5

*Seven Southern Counties.*—Four are much below the Scotch average, and three above it. Lanark, which is the great manufacturing county of Scotland, is one of those in this group that seems to have made the most advance in agricultural wealth, namely, 20.3 per cent.; whilst the progress of Haddington has been remarkably small, only 5.1 per cent.

*Five Northern Counties.*—The diversity of fortune appears to have been greater in this section than the former; the increments rising from 4.5 per cent. in Inverness to 35.8 per cent. in Forfar. The contrast which the two Highland counties present is noteworthy. Argyle has increased its rental by £46,093, or 19.8 per cent., while the in-

crease was only £8217 in Inverness, or 4.5 per cent.; measured proportionately, less than a fourth of the Argyle rate. The Forfar rate, 35.8 per cent., is nearly twice the average ratio for Scotland, and far in excess of any per centage recorded in this or the previous table.

Whilst it is right that the Land Agent should treat the letting of a farm as an ordinary matter of business, looking to the proprietor's interests, he should not overlook the fact that to let a farm at too high a rent is not only ruin to the tenant, but ultimate loss to the owner of the soil. The land becomes deteriorated, and for many after years, instead of forty shillings an acre, he must be content with twenty.

It may be useful to know of the following decision in a valuation under the Assessment Act:—An appeal against a rate made by the overseers of the parish of Brinkworth, Wiltshire, in accordance with the valuation list made by the assessment committee of the union, was heard before the Court of Queen's Bench. It appeared that the farms in that parish had been rated upon their actual rentals. The farm of the appellant (146 acres) was thus assessed on a gross rental of £300, while a neighbour's farm of the same quality of land (244 acres) was assessed on a rental of only £400 a year; and so, on the same principle, several other farmers, occupiers in the same parish, were rated less than the appellant, who contended that the lands should have been rated on

their net annual value, not on the actual rentals paid. This plea was allowed by the Court, who decided that the right test of annual value is not the actual rental, but such rent as could reasonably be expected to be paid. The judgment accordingly was for the appellant.

The Land Agent who wishes to attain success in his vocation should endeavour to order and arrange his duties so as that everything should be done at its proper time, and that one engagement or operation should interfere as little as possible with another. It is but a doubtful sign of his capability to find him waiting till present work and engagements have been completed, before thinking of what is to be done next.

In England, although the work of enclosing is almost complete, there are still many estates on which in no other way could so great improvements be made at a moderate outlay of money, time, and thought, as by a judicious readjustment of the different holdings. It is a work, however, that will try the temper, discretion, and practical knowledge of the Agent. If he work by the map only, or if he be too impatient and dictatorial to listen to suggestions, or too ignorant of practical details to appreciate the tenants' explanations; or, again, if he be not firm enough to carry through a well-investigated measure in the face of some opposition—he had better remain quiet, and draw his salary. If he does his work well, his best reward will be, when



the sturdy, honest, illiterate man, who put up his back most resolutely against these changes, admits in a few years handsomely and publicly the great good which they have done.

Great estates do not necessarily give rise to great farms. In ancient Europe, the seignorial domains, and the lands of the clergy, were of immense extent; and yet they were let out to poor tenants occupying small holdings. The same contrasts exist in our own times. If England contains large farms, Ireland presents almost everywhere cottages with scarcely more than two or three acres of land attached to them. It is the same in Italy and Spain, where the most extensive and valuable estates generally exhibit a multitude of small tenants. In certain parts of Germany, too, we find indivisible entailed baronies, often comprehending fifty to sixty small farms, let to as many peasant families. Moreover, if we look to France, we see a still further proof of there being no necessary connection between the size of estates and that of farms.

Land Agents generally pay too little attention to the laying-out of farms. The proper disposition of the different fields for the sake of economy in fencing, for convenience of access, and for a full command of pasture and protection of crops at all times, has been very much neglected. Many suppose that this business is easily and quickly disposed of. That a few minutes, or hours at most, will enable a man to plan a proper arrangement of his

fields. This is, however, a great error. Even when a farm is of the simplest form many things are to be borne in mind in laying it out. In the first place, we all know that fencing even a moderate-sized farm is a costly matter: it is of course most desirable to do it well, and with as little material as possible. A certain length of fence will enclose more land in the form of a square than in any other shape: hence, fields should approach this form as nearly as possible. Again, the disposition of roads, so as to avoid unnecessary length of fencing and occupy the least quantity of land, is a matter of much consequence. There are, moreover, other important considerations. For instance, it is always desirable that land of a similar quality be in the same enclosure. Some may be naturally too wet for anything but meadow; some may be very light; some may be naturally sterile, and require unusual manuring with green crops. All these should, as far as practicable, be included each in its own separate boundary; because all require different management, in a greater or less degree. The situation of surface drains, forming the boundaries of fields, may influence their shapes; facilities for irrigation may have an essential bearing; and convenience for watering cattle must not be forgotten. Moreover, every field on an estate should be entered by a good self-shutting and self-fastening gate: a proper inclination in hanging will secure the former requisite, and a good latch the latter.

Each field, too, should be numbered, and the number painted on the gate-post.

An intelligent farmer gives it as his opinion that all farms, more especially those on a light soil, are best divided into oblong fields, because, when occupied either for grazing or breeding, oblong fields are so easily and simply subdivided, and water can almost in every case be got by making proper ponds at the junction of three or four fields, the gutters or ditches of which will convey water to the ponds. This is a great advantage in turnip crops, as it is easier to cut off or divide them with hurdles, flakes, or nets, &c., and the sheep can be fed off with the greater convenience; always taking care to set off a certain proportion of drills for the feeding cattle in the sheds or folds, &c., or for sheep upon the adjoining stubbles or pastures, in proportion to the state of the ground, rich land having the greater proportion taken away. Nor is it any objection to the oblong shape that the ridges may be too long, as that can be easily obviated by cross head-lands or head-ridges, which can be made in any soil at any place, according to the length of ridge most agreeable to the taste or opinion of the proprietor or occupier. Even where the land has a wet, damp, or retentive subsoil, an oblong form may be advisable, for the head-ridges can be furnished with gutters or gripes in the places most suitable for taking off the water. It is always necessary to attend to uniformity of soil, and many farmers have

to lament that their enclosures are laid out more with a view to beauty than utility, and that regularity and uniformity of appearance have been chiefly kept in view, whilst little regard has been paid to a point infinitely more essential, that of having each field of the same sort of soil; hence, the most heterogeneous are often unfortunately mingled in the same field. One farmer complains that this principle has been so little attended to on his farm that he has ridges, one half consisting of a strong wet clay and the other half of a sandy soil fit for turnips. Another farmer proposes to obviate this objection by altering the texture of the soil. He observes that there are fields partly consisting of strong soils and partly of light, where probably there are not above an acre or two of the latter for ten or twenty of the former, and where almost every year the culmiferous crops fail on the light soils from drought. He therefore suggests that at any slack time, whether in winter or summer, when the field is under fallow, it would be proper to employ two carts and horses, with four fillers, and to cover the acre or two of light soil, with the strong soil contiguous. Draining, perhaps, would in the first place be necessary; but the soil in the field would ever after be uniform. In fields where light soils predominate, the same plan reversed might be adopted. The principal objections to this plan are, 1—the expense; and 2—that the

subsoil remains the same ; but the idea is certainly excellent wherever it is practicable.

The sizes of the enclosures into which arable farms should be divided must of course depend on circumstances. The main guide in this respect is usually the rotation of crops. A 400-acre farm, managed on the six-course shift, will have six divisions, each  $66\frac{2}{3}$  acres in extent, under either a distinct species of crop, or under the same species differently managed. Three fields, each containing  $22\frac{2}{3}$  acres, make up the extent of every division, or in later districts four fields may be better than three. In the one case, a farm of the size just stated would have eighteen enclosures, while in the other it would have twenty-four. For a farm of 200 acres these enclosures would be much too large, especially if the land were almost wholly devoted to root and cereal crops. Yet the fields should not diminish in extent in proportion to the smallness of the farm. A holding containing, say, eighty acres, ought to have much smaller enclosures than one more than twice its extent, but they should be larger than half the sizes most suitable for the latter. For farms of about 100 acres, the enclosures should range from eight to ten acres, but they should not be less save in exceptional cases. One of the chief barriers in the way of English agriculture is the great number of small fields into which farms are too commonly divided.

It has been justly observed by an eminent prac-



tical agriculturist, that too much can hardly be paid for a good soil, and that even a low rent will not make a bad farm profitable. The labour of cultivating a rich soil is nearly the same with that of cultivating a poor one, while the latter requires more manure, and consequently is more expensive than the former, and the returns bear no proportion in value. It is a wise maxim in husbandry, that the soil, whatever may be its nature, should, like the cattle by which it is cultivated, be kept in good condition, to enable it to do its work. It need hardly be said that in proportion as the climate is improved by sheltering plantations and drainage, the altitude at which grain crops may be grown becomes the greater. In general, it is better to devote high grounds to sheep pasturage than to tillage; and this consideration will furnish a guide in the selection and rent of land. In making a choice of land for tillage, let it be a rule to prefer a gently sloping surface or level, to a hilly and irregular surface. The labour of working land of irregular surface is very great, independent of other disadvantages; and such land should be at a proportionably low rental. If possible, select land that lies with an easy slope to the south; though, where well sheltered, the inclination in other directions is of little consequence. If it requires drainage, or is exposed to heavy rains, the farmer should observe its degree of inclination, and, if there be no lower point to which the water may be conveniently

drawn, he should avoid the risk of taking the land, for this defect in its character will prove a frequent source of trouble and loss. In the case of dry calcareous soils, and in moderately rainy districts, the inclination of the surface and means of drainage are immaterial. Land on the banks of a running stream is likely to be more salubrious for crops than that which is near sluggish brooks or dull sedgy lakes. From dull inert waters there arise, in certain conditions of the atmosphere, heavy pernicious vapours, which steal along the surface of the adjacent grounds, and tend to blight and otherwise injure vegetation. These waters, also, are a fertile nursery of insects. Running waters purify the air, and are of great advantage for cattle. See, however, that the land is not liable to be flooded in winter, for a contingency of that nature would lessen its value. Agents should never forget that climate, soil, elevation, &c., are of subordinate consequence in comparison with the very important matter of *distance from markets and roads*. A long carriage to market, particularly if the roads be indifferent, is one of the greatest drawbacks which the agriculturist can possibly encounter. We have a striking example of this in some parts of North America, where the finest lands, such as would bring an annual rent of £5 or £6 per acre in England, are not for their entire proprietorship worth as many shillings. Where bad roads interpose, a distance of a few miles is practically as bad as a distance of

hundreds, or even thousands. The means of procuring an abundance of *labour*, at a reasonable rate, also form an important matter of calculation for all persons before settling on a farm.

Farm buildings should invariably be placed on a dry, healthy spot, as near the centre of the farm as other considerations will admit. All the hay, grain, and straw being conveyed from the fields to the barn, and most of it back again in manure, the distance of drawing should be as short as possible. This will save much travelling of men and of cattle to and from the different parts of the farm. The dwelling should be comfortable, but not too large. It should in all cases be adapted to the extent of the farm and the customs of the district. A large costly house, with a very limited area of land, indicates bad management. The blunder of the old Roman should surely be avoided, who, having a small piece of land, built his house so large that he had less occasion to plough than to sweep. It is to the landlord's advantage, therefore, that he should erect, on his various farms, such dwelling-houses as may correspond to their extent. True, splendid residences may attract a class of men willing to pay high rents, but wanting in agricultural knowledge, and therefore the worst tenants that could be selected. They will, no doubt, pay their rents, but they will destroy and scourge the land; and land once robbed is not so easily put into heart again as many persons suppose. Of course, a superior

tenant-farmer should have a good, substantial, and proper residence. He must have it, if he and his family are to be comfortable, and maintain a respectable standing in his neighbourhood; but he must have the acres and capital as well. Farmers, as a rule, love plainness, and do not care much for outward show. In building a farm-house, it is judicious to consult the wishes of the tenant; and, while avoiding everything like extravagance, in either extent or ornamentation, to raise a structure respectable without and commodious within. It must be admitted that the farm dwelling-houses of England are much superior to those of Scotland, though, as regards homesteads, Scotland is far ahead of England.

We find that Mr. Bailey Denton states, in his work already referred to, that farms of 1000 acres and upwards, *of tillage or mixed husbandry*, will require an outlay, in house and homestead, of £4000 to £5000, or £4 10s. per acre; and the future average repairs per acre will be represented by a common multiplier of  $\cdot 300$ . Farms of between 500 and 1000 acres *of tillage or mixed husbandry* will require an outlay, in house and homestead, of £2500 to £4000, or £6 per acre; and the future repairs will be represented by a common multiplier of  $\cdot 485$ . Farms of between 200 and 500 acres, *of mixed or dairy husbandry*, will require an outlay, in house and homestead, of £1500 to £3000, or £7 per acre; and the future repairs will

be represented by a common multiplier of  $\cdot 700$ . In many cases these acreage rates are exceeded, and £10 per acre have been profitably expended in the house and buildings of a farm.

Agents should be very careful in fixing upon the sites of houses. High and dry situations, having a free circulation of air, are proverbially healthy; whilst those which are low and damp, or surrounded by confined air, are the opposite. Experience afforded by the state of troops when encamped, or when in permanent barracks or in hospitals, is conclusive on this point. It is a known fact that the mortality of troops in Jamaica has been diminished from 120 to 20 per thousand by their removal from the plains to the hills; and it is well ascertained that ague, dysentery, and fever prevail in localities where the surface of the ground is naturally wet and insufficiently drained, or where there exists an accumulation of decaying matter, of which one sure indication is the presence of an abundance of flies. Dampness of situation is also productive of mental depression and bodily feebleness. Superabundance of trees, or any other obstruction to the free circulation of air immediately round a dwelling, is prejudicial to health, and should be removed. Moreover, loose soil close to a house is a frequent cause of damp, which might be remedied by a flagging of stone or asphalte, and in many situations a dry drain or area ought to be formed round the building. In selecting the site of a dwelling, there-



fore, especial attention should be paid to the nature of the surface.

For dwellings in the country, good drainage and ready access to pure water are not less essential than they are in towns, and they ought, therefore, to be made the subject of deliberate investigation before the locality is decided on. The aspect of dwellings is often greatly dependant on local circumstances, and has an influence on their salubrity which is too much overlooked. In preference to all others, a southern aspect should be chosen, and where that is unobtainable, one inclining either north-west or south-east, as it is considered the best aspect to catch the sun on all sides. Rooms to be chiefly occupied in the height of summer are exceptional, though in such cases preference should be given to an eastern or a north-eastern over a due northern aspect. In towns the difficulty of obtaining a sunny frontage may frequently be great, if not insurmountable, but the importance of having the sun's rays within the dwelling for some portion of the day, especially in rooms occupied by children or by invalids, should never be forgotten. Ventilation, too, is of vital importance, though, judging from the neglectful indifference of multitudes, its value is far from being duly appreciated by the educated, and even by some in the scientific classes of the community. Were it otherwise, the closeness perceptible on entering many of their dwellings, the oppressive heat of the rooms, the

sickening fustiness in the apartments occupied by the servants, and in those of the children, would certainly not exist. When the number of hours passed within doors by every human being in a civilized community is considered, it will be manifest that the breathing of vitiated air for so large a portion of the twenty-four hours must be as injurious as living on unwholesome food.

Agents should at all times strictly enforce external as well as internal cleanliness. Indeed, we are sorry to say that neglect of sanitary laws is as much manifested in the country as it is in towns, and on the Continent not less than it is in England. It would be easy to point to spots where the air is unrivalled for purity, and the scenery around of surpassing beauty; and yet such are the accumulations about the dwellings, that it is often difficult to enter the doors without wading through a stream of filth, alike offensive to sight and smell. Can it be a matter of surprise if such violations of the laws of nature be visited with sickness and premature death? That those who live in close proximity to black and stagnant pools, to foul ditches, or to sluggish open drains, will periodically suffer from fever or dysentery, may be predicted with as much certainty as that a house in flames will be consumed if the fire be not extinguished, or that the neglected garden will be overrun with weeds and become a wilderness.

The longevity of life in healthy districts is cer-

tainly very remarkable. We give the following instance :—

The Venerable the Archdeacon of Carmarthen entertains at dinner annually, on the anniversary of his birth-day, twenty-eight of the oldest communicants of his church. The united ages of the whole party amounted to the extraordinary total of 2386 years, yielding an average of 85 years to each person. Besides these, there were eight other persons members of his church, who for various reasons were unable to avail themselves of the archdeacon's hospitality, whose united ages amounted to 692 years, averaging 86 years and six months for each person. These single instances of extreme longevity may be thus generally classified. Of the thirty-six persons included in this calculation eight have attained the patriarchal age of 90 years and upwards; the eldest, a female, being 99 years of age, and the next eldest, a man, 97 years old. None were invited under 80 years of age; and the total ages of the thirty-six amounted to 3078 years in the aggregate; giving the average age of the whole party 85 years and six months. Such rare and numerous instances of extreme longevity can only exist under very favourable sanitary conditions; such as may reasonably be supposed to prevail in the locality where these interesting annual gatherings of veterans take place.

Moreover, the efficient covering of houses is a matter of great importance. Slate is, as we all

know, an excellent material for this purpose, and has been known to continue sound and good for centuries; but unless it be brought from a quarry of good repute it is necessary to test it. For this purpose strike it sharply against a large stone, when if it produce a full sound it may be considered good; and if in hewing it does not shatter before the edge of the *sect* (or instrument used in that operation), the criterion is decisive. The goodness of slate may farther be estimated by its colour; the deep black blue is apt to imbibe moisture, while the lighter blue is always the least penetrable: the touch also may be in some degree a guide, for a good firm stone feels somewhat hard and rough, whereas an open slate feels very smooth and as it were oily.

Another method of essaying the goodness of slate is to place the slate-stone lengthwise and perpendicular in a tub of water about half a foot deep, care being taken that the upper or unimmersed part of the slate be not accidentally wetted by the hand or otherwise. Let it remain in this state twenty-four hours. If good and firm stone the moisture will not rise more than half an inch above the surface of the water, and that, perhaps, at the edges only, those parts having been a little loosened in the hewing; while a spongy, defective stone will draw water to the very top.

In constructing any new steading, the principle should be adopted of having the machinery required

for all the usual operations carried on there arranged on a regular plan, and driven by some one motive power. An immense saving will take place if this be done, as the machinery being fixed, and consequently working steadily, will consume much less power than the rude portable contrivances usually seen on English farms. Having a steam-engine properly fitted up, it is quite easy to throw upon it a variety of heavy work; indeed everything that can should be laid on the back of this cheap and never-tiring servant. Thrashing, grinding, dressing, bruising, cutting, sawing, pumping, churning, and a variety of other employments, may be performed by it at a much cheaper rate than they could be executed in any other way. Motive powers, adapted to agricultural purposes, are water-wheels, steam-engines, or horse-wheels. Windmills are sometimes used, but in England they are not worth erecting on account of their great uncertainty and irregularity; in the colonies, however, there may be situations where windmills may be used with advantage. The water-wheel is by far the best and cheapest, if it can be had. There are many situations where a fall of water may be obtained by collecting a number of small rills, and carrying them through ducts which have the minimum amount of fall; and I have seen water-wheels put up in situations where, previously to proper levels being taken and an exact survey being made, no one would have dreamed of finding a sufficient



fall. In some cases the drainage water from the land has been collected and made to turn a wheel; an interesting case of this sort occurs at Teddesley Hay, in Staffordshire, on an estate belonging to Lord Hatherton. After a quantity of land had been drained, the water was collected into two channels, which convey it to an extensive reservoir; from this it flows underground for a distance of nearly half a mile, in a culvert fifteen inches in diameter, to the farm buildings, where it is discharged upon an overshot wheel, and so furnishes power for the various purposes required upon the estate.

A saw-bench is a very useful addition to the machinery of all large holdings, as by it the timber can be cut in the most economical manner, sawing by hand being a very costly operation. Circular saw-benches are made either of iron or wood, and may be purchased of all agricultural machine makers. The saws are round plates of steel, with the teeth cut in their outer edges. They are made of various sizes, from a few inches to three or four feet. Moreover, the teeth are cut in the form best adapted to the work required to be done.

In letting farms or premises of any kind it should be stipulated in the lease that the tenants insure them. It is customary, in some districts, for the landlord to insure the farm buildings against fire, and charge the premium to the tenant. This is a very good arrangement; and, if it is agreed to in

the lease, there can be no reasonable objection to it, only care must be taken to keep the estimated value of the various houses as nearly correct as possible. Moreover, in cases in which tenants are not overburdened with capital, they should be compelled to insure their stock and crop against the overwhelming consequences of fire, especially when this can be done without the slightest difficulty or trouble. A farmer who has obtained stock, implements, and other farm requisites upon credit, and hesitates or neglects to insure them against fire, is, should they be consumed and he be unable to pay for them, virtually robbing those who confide in him; and no pity should be felt for the man who overlooks a precaution, by the neglect of which thousands are annually ruined. It would in all cases be wise in the Land Agent to submit the policies to some experienced lawyer well versed in the subject of insurance, in order to be certain that all is right, especially after the determination of the fire insurance offices with reference to the losses occasioned by the late explosion at Erith. Moreover, it is truly stated by Lord St. Leonards, that very few policies are so framed as to render the companies legally liable. Those offices should invariably be preferred which have the reputation of paying claims honourably and punctually, even should they require a higher premium. The decision of the Associated Companies in the Belvedere case has produced great and justifiable dissatisfaction. Those companies

mistaking their own interests, have agreed to sustain each other in an illiberal policy; and, on the strength of this compact, have refused the compensation they would gladly have paid rather than allow any single company to monopolise the advantage of generosity. Fire insurance is a most lucrative business, and in its management it has invariably been found that liberality is the best policy. We are glad to see that the Chancellor of the Exchequer, in his Budget of 1865, has reduced the duty on fire insurance one-half, making it now a uniform duty of 1s. 6d. on all descriptions of property.

Of course, the fact of a tenant holding possession of lands from his landlord implies an obligation to cultivate the land in a husbandlike manner, according to the custom of the country where situated; and thus an implied promise arises, upon breach of which an action may be brought by the landlord. The custom of the country means, the general usage and treatment of farms of a similar description prevalent in that country. The obligation to manage a farm in a husbandlike manner is broken when dung has been removed from it without an agreement to that effect having been entered into. In all cases we recommend special covenants as to cultivation, mode of tillage, manure, &c., to be inserted in farming leases, in place of the vague and uncertain covenant to cultivate according to the custom of the country, or according to good husbandry. The interpretation of which covenant,

like the insertion of "all usual covenants," may give rise to much litigation, to say nothing of the absurd practices in farming which the words, "according to the custom of the country" cause to be continued from year to year, even in the best farming districts.

The privilege accorded to the manufacturer and tradesman does not extend to agricultural tenants, so as to allow the removal of things erected for purposes of husbandry, if they are of a strictly agricultural character; yet, if they have relation to trade of any description, they may be taken away. It may be stated that all these laws may be varied by the contract of the parties, provided no general inconvenience arise from their so doing. If any part of the growing crop of the tenant shall be seized by the sheriff under an execution, such crops, so long as they remain on the lands or farm, shall, in default of sufficient distress of the goods and chattels of the tenant, be liable to the rent which may accrue and become due to the landlord after such seizure or sale, and to the remedies by distress for the recovery of such rent, and that notwithstanding any bargain and sale, or assignment, which may have been made or executed of such growing crops by any such sheriff or other officer. If the tenant of any farm erect, with the consent of the landlord for the time being, at his own cost and expense, any farm building, either detached or otherwise, or put up any other building, engine, or

machinery, either for agricultural purposes or for the purpose of trade or agriculture (which he has not been compelled to erect by contract with his landlord), then all such buildings, engine, and machinery shall be the property of the tenant, and shall be removable by him, so that he does not injure the lands and buildings belonging to the landlord, or otherwise he must put them in the same plight and condition as they were in before the erection of anything so removed; but the tenant, previously to doing this, must give to his landlord one month's notice in writing of his intention to do so, and the landlord or his agent may then elect to purchase the matters and things so proposed to be removed, and the right to remove these shall then cease, and shall then belong to the landlord; and the value thereof shall be determined by two referees, one to be chosen by each party, or by an umpire to be appointed by such referees, and such amount shall be paid or allowed in account by the landlord.

The right of an out-going tenant to the crops of the last year of his tenancy not ripe at its determination, is either regulated by contract or by the custom of the country; if by the latter, a common usage of the neighbouring farmers is of itself sufficient without the necessity of proving immemorial usage: the courts of law are in favour of upholding a custom. If the lease or agreement contains nothing to the contrary, and the custom



warrant it, the out-going tenant is of course entitled to the crop. This custom holds good both as regards yearly tenants, as also to tenants holding under leases. The custom of the country likewise (in the absence of agreement) regulates the removal of dung, hay, and straw, on the determination of the tenancy. In general, the out-going tenant is not entitled to remuneration for manure left on the premises, for the removal of it would be unhusband-like, but contracts are frequently entered into between the landlord and tenant, whereby the tenant is authorized on quitting the farm to dispose of manure to an in-coming tenant, also that the tenant may remove straw, he returning manure equal in weight to such straw removed. The right of an out-going tenant to be paid for the expense of tillage, not exhausted at the time the farm is given up, depends likewise on the custom of the country or on contract. A usage for the landlord to pay a sum of money in compensation to the out-going tenant for labour and expense bestowed by him in tilling, fallowing, and manuring arable and meadow land, according to the course of good husbandry (the advantage of which labour and expense the tenant could not otherwise reap), is a reasonable usage. Such practice, being a mere usage of the neighbourhood, is not a custom, strictly speaking, and need not be immemorial. The payment or remuneration is usually ascertained by valuation; the length of time that has elapsed, and the number

of crops since the last fallow, together with the dressings, manures, seed, and labour, being taken into consideration. Manure in the yard, ploughing, if alone, draining, and fixtures, are also subject to valuation in a like manner.

The Land Agent should be thoroughly conversant with the value of a soil for the purposes of agriculture, so as to instruct the tenantry, at least the most ignorant of them, in the rotation of cropping, and the proper kinds of seed to sow in certain soils. This value may be judged of in one of these ways : by the quantity and quality of the crop which it affords on being subjected for a series of years to cultivation ; by the nature of the herbage, which is spontaneously yielded by the ground ; or by the quantity of requisites for the support of vegetation which it may be found, on chemical analysis, to afford.

Practice and patience will make the inquirer sufficiently expert, and enable him to classify and estimate the relative soils, according to their degrees of fertility, in a sufficiently accurate manner. If indeed all soils were alike, and in similar climates, the same treatment would produce the same effects ; but we know that they are not so—that one piece of land is remarkable for producing wheat, another for barley or oats, another for pasture. Should we then be justified in expecting a fine crop of wheat from the oat soil, unless powerfully assisted by manure, or a profusion of herbage from land pecu-

liarily suited to corn ? or would it be prudent in making the arable and pasture fields change conditions without being acquainted with their respective qualities ? By no means. In this, then, and similar cases, an analysis of the soils will be most useful, in order to ascertain if they can respectively supply to the corn or the grasses the substances necessary to their support.

There are so many varieties of soil, originating, as they do, in the destruction of rocks, a process in constant operation, that it is only necessary to mention those in which a particular ingredient predominates. These may be primarily divided into sandy, gravelly, clayey, calcareous, peaty, and alluvial.

Sandy and gravelly soils owe their name to the silicious particles of which they are chiefly composed, the fragments of stony matter being comparatively large in the latter, while in the former they are reduced to powder. Gravelly soils are more productive than sandy soils, although their cultivation is in most instances very difficult, owing to their loose and porous texture preventing the profitable application of manure. In short, both must be considered *hungry* soils, and best adapted to pasturage.

Clayey soils are so named from their principal constituent, alumina ; and are characterized as stiff, heavy, or cohesive—terms denoting the greater or less prevalence of their main ingredient. Pure clay

is almost impervious to water, and consequently vegetation on such soil is either very scanty or wholly wanting.

In addition to the bodies already mentioned, calcareous matter, such as lime, chalk, or marl, must enter into the composition of every soil having any pretensions to fertility; for though in some cases, it may be dispensed with, it is impossible to bring most crops to perfection without it.

Peaty soils, again, are formed by successive layers of vegetable matter, such as leaves, trunks, branches, and roots of trees, together with herbaceous plants of every description. This soil accumulates but slowly, requiring centuries for its production, although in some cases, as in Ireland, and Scotland, for instance, the turf sometimes gains two inches in a year, thus adding considerably to the thickness of the soil. Without entering much further upon this subject, it may be said, that as peat moss always originates in some moist spot, it is hostile to vegetation, and is generally difficult to bring under profitable cultivation.

The agricultural value of peaty soils is greatly dependent on their texture. If they are spongy and fibrous, they require to be overlaid with a large quantity of clayey or earthy substances. But if they are not very fibrous, and are found to produce a good thick covering of coarse herbage in their naturally wet state, they are likely to be easily reclaimed, and for some crops, may become tolerably

productive. The sterility of moss is ascribed to the want of putrid fermentation, for it is inflammable and phosphorescent—qualities wholly removed from bodies that have undergone the process of ultimate decay. Moss air is healthy, salubrious, and antiseptic, which proves that there is no putrefaction. Peat taken from the sea-side, where it has been daily covered with sea water, and mixed with one-seventh its bulk of slacked lime, heats and ferments, and produces excellent effects as a manure. Any peat, saturated with strong brine, and mixed with lime, would be equally effective.

Some landowners manufacture the peat into various uses. Sir James Matheson, Bart., M.P., Lord-Lieutenant of Ross, does so on a highly remunerative scale, on portions of his princely possession, the Isle of Lewis. The peat is there manufactured so as to produce paraffin oil, waggon grease, pitching for ships' bottoms, and even candles. The railway system too, has been adopted through the peat-fields for carrying the raw material to the works. From four to five miles of leading and cross lines, with turning-tables, upon the most improved principles, are in operation. So much is labour economised, that the canal system prevails in the low-lying localities. We learn that about ten tons of the crude material are manufactured weekly, and after going through a refining process, is shipped to the southern markets. So remunerative does the Honourable Baronet find the whole



enterprise, that he is constructing similar works on other parts of the island, thus giving full employment to the large population. Moreover, Sir James has, during the last few years, executed important improvements on his home farm, and has adopted a rotation of cropping which gives a large turnip break yearly. By a thorough system of deep ploughing and sub-soiling, and improvements in the management of home-made manure, he is enabled to grow extensive and good crops of turnips, which weighed last season on inlying old land, 24 tons 9 cwt., and 24 tons 14 cwt. of swedes per acre; and on the same kind of land the weight of the yellow turnips was 25 tons 5 cwt., and 29 tons 14 cwt. per acre; both kinds of turnips being raised with compost manure, at the rate of 30 solid yards per acre. On outlying new land the weight was 19 tons 9 cwt. of swedes per acre, and of yellow turnips the weight was 20 tons 3 cwt. per acre. On this land the turnips were raised with Lawson's Phospo guano and bones gathered in the Lews, for the crushing of which the worthy proprietor has a bone mill on his farm. From this improved system of farming, the people of Stornoway are deriving substantial benefits in the shape of a regular supply of good beef and mutton, the turnips on the inlying portion of his farm being used for feeding cattle and sheep, for selling to the Stornoway butchers, and the turnips upon the out-

lying new land are let to the sheep farmers of the island.

Truly Sir James Matheson, on his territorial island, and his nephew, Ardross, on the mainland, are an immeasurable boon to the North of Scotland. They foster habits of industry and honest labour, they love the generous cultivation of the soil,—to make the earth rejoice in rich embroidery of leafy locks and verdant pasturage,—they give ample proof that they admit the eternal truth:—"The profit of the earth is for all: the king himself is served by the field."

"Oh what a glory doth this world put on  
For him who, with a fervent heart, goes forth  
Under the bright and glorious sky, and looks  
On duties well performed, and days well spent!  
For him the wind, aye, and the yellow leaves  
Shall have a voice, and give him eloquent teachings.  
He shall so hear that solemn hymn, that Death  
Has lifted up for all, that he shall go  
To his long resting place without a tear."

Alluvial soils are formed by the deposition of earthy matters, which have been suspended in tidal and river waters. They consist, therefore, of a variety of ingredients, though chiefly of those already described, and are naturally fertile, or capable of being rendered so. All soils, and they are innumerable, have essentially the same ele-

ments, clay, lime, and sand forming the basis of all; but they vary as one or another of these prevails, or as one or another is wanting.

We have thus thrown the different soils into general groups, and partially indicated the productive qualities of each. Agricultural chemistry is, to a certain extent, an unattractive study, yet it is essential that it should be well understood by those who supervise landed property.

There are various modes of distinguishing soils, without entering into a minute analysis of their component parts. The simplest is to compare their texture and the form of the particles of which they are composed. Of course the science of geology would aid one much in arriving at a decision, as it teaches the relative position and nature of the minerals of which the crust of the earth is formed. Yet the knowledge which geology imparts is not sufficient of itself for a minute classification of soils. Experience has taught us that the soils which lie immediately over the different strata vary greatly.

Skilful men are able to tell by the look of a soil whether it may be easily made productive. They judge of it by its similarity to some other soil which is known to be fertile. Although a judgment thus formed is often as nearly correct as could be desired, yet it is an arbitrary and unskilful way of arriving at a decision.



## ANALYSIS OF AGRICULTURAL PRODUCE.

According to M. Sprengel, 100,000 lbs. of each of the following Vegetables contain of fixed ingredients in lbs. :—

	Potash.	Soda.	Lime.	Magnesia.	Alumina.	Oxide of iron.	Oxide of Manganese.	Silica.	Sulphuric Acid.	Phos. Acid.	Chlorine.	Total of fixed ingredients.
Wheat . . . .	225	240	96	69	26	—	—	400	50	400	10	1516
Wheat Straw . . .	20	29	240	32	90	90	—	2870	37	170	30	3608
Barley . . . .	278	290	106	180	25	—	—	1182	59	210	19	2349
Barley Straw . . .	180	48	554	76	146	14	20	3856	118	160	72	5244
Oats . . . .	150	132	86	67	14	40	—	1976	35	70	10	2580
Oat Straw . . . .	870	2	152	22	6	2	2	4588	79	12	5	5740
Rye . . . .	532	532	122	44	24	42	34	164	23	46	9	1572
Rye Straw . . . .	32	11	178	11	25	25	—	2297	170	51	17	2817
Potatoes . . . .	390	235	33	32	5	2½	—	8½	54	40	15½	815
Beans . . . .	415	816	165	158	34	—	—	126	89	292	41	2136
Bean Straw . . . .	1656	50	624	209	10	7	5	220	34	226	80	3121
Vetches . . . .	897	622	160	142	22	9	5	200	50	140	43	2290
Straw of Vetches .	1810	52	1955	324	15	9	8	442	122	280	84	5101
Peas . . . .	810	739	58	136	20	10	—	410	53	190	38	2464
Pea Straw . . . .	235	—	2730	342	60	20	7	996	337	240	4	4971
Lucerne . . . .	362	166	1304	94	8	8	—	90	109	353	86	2580
Sainfoin . . . .	494	105	527	69	16	—	—	120	82	220	38	1671
Red Clover . . . .	419	111	584	70	3	—	—	76	94	138	76	1571
Cabbage . . . .	1847	578	1822	202	11	151	40	529	774	436	518	6908
Beet . . . .	1481	3178	285	133	20	58	50	105	123	167	380	5980
Turnips . . . .	72	109	127	22	8	2	1	40	41	73	23	518
Swedes . . . .	2651	1164	835	282	40	35	—	475	890	408	266	7046
Carrots . . . .	2718	709	505	295	30	25	46	105	208	395	54	5090



Science shows that the produce of the soil is limited. What the exact limit is may be unknown ; but it has proved that an acre of soil contains some definite amount of the mineral constituents of plants ; it may be of five hundred quarters of corn, or it may be of ten hundred ; and this definite amount, whatever it may be, is all that can be got out of it, except you restore to it the mineral matters which you have taken from it ; that is, return to it, in the shape of manure, the entire crop which you have taken from it. The soil at first yields up some portion of the food of plants easily. Afterwards it becomes more and more difficult, in proportion as the more attainable minerals have been taken up, for the plant to extract what remains from the soil. The population of one generation, by turning its special attention to agriculture, may raise abundance of food for its generation ; but if its scientific skill has been so imperfect that it has extracted more from the soil than it has returned to it, the next generation may, and some following generation at some period or other must, find it impossible to obtain from it a sufficiency of the necessities of life.

The vegetative power of nature appears never to diminish ; the process goes on year after year with increasing energy, annually bringing forth an increase of vegetable matter to be again decomposed and returned to the soil. This is the natural process by which the decomposing matter which we

find in the soil is formed, and there has been a continual succession of production, decay, and reproduction going on ever since nature first sprung into existence. No loss is sustained by the decomposition, all is reduced to the first elements, and the decay of one crop becomes the nourishment of the next.

Land Agents would do well to see that mixed husbandry is followed by the tenants under their charge. That landlord ill consults his own interests, who countenances a system under which improvement is well nigh impossible; and where the land is permitted to continue of one unvarying value from year to year, except so far as the character of the seasons may increase or diminish the quantity of its produce. The mixed arable and dairy system, as practised in Scotland, is greatly to be preferred to that pursued in many of the English counties. The dairy is as profitable of itself in Scotland as it is in England, while, at the same time, the farmer is not entirely dependant on it for paying his rent; it forms, in fact, only a part of a system which contributes its share to the general fund; whereas, in Gloucestershire and Cheshire, the principal dependance of the farmer is upon the produce of his cows. Mixed husbandry is certainly the best for the community, the best for the landlord, and the safest for the husbandman; because it rarely happens that the "plough and the pail," or the "fleece and the orchard," are hopelessly bad

at the same time. The Flemings have a proverb, that "without forage no cattle; without cattle no manure; without manure no crops; and without crops no rents." We are not devoid of instances in which, in trying times, the profits of one department of an establishment have met the losses of another. The fruit of experience is always worth gathering, and nothing is clearer than that one branch of rural economy should never be permitted to interfere with the due development of another.

It may safely be said that a great defect in our agriculture is the failure to rear the proper number and quality of animals. Our experience sufficiently demonstrates the important truth that if the quantity of live stock were increased the aggregate quantity of grain produced might also be greatly increased, and without any corresponding increase in expense. The explanation of what seems at first so paradoxical is found in the fact that, in this manner, the land would be kept constantly in better heart. Instead of deteriorating from year to year, as is the case where grain alone is the principal product, the land, if a proper proportion of live stock were reared, would retain its fertility for centuries, and might, perhaps, be constantly improving. The effort to keep up, by means of guano and artificial manures, the productiveness of land which is solely used for the cultivation of grain, is a vicious system of agriculture. That such manures are highly valuable in their way, and will,

in the hands of the judicious cultivator, produce advantages which can hardly be over-estimated, is undoubtedly true: but, after all, with the exception of the alkalies and phosphates they contain, they do not possess the elements of permanent benefit. They should be regarded as in the nature of medicines, or like artificial stimulants to the human system. The true pabulum of the soil, provided and arranged by Nature for this very purpose, is obtained by the rearing of live stock, and in no other manner. Indeed, it is probably true that the use of the other manures, followed by the continual carrying off of the grain to market, will be found in the end only to render the soil more hopelessly bankrupt. It will galvanize it into spasmodic action for the occasion, but leave it afterwards more prostrate than before.

We shall be enabled to understand this truth more completely if we consider that, in order to obtain a healthful growth of any plant, several ingredients are necessary in the soil. When all the product is annually taken away, and nothing returned to the land, this regular and constant drain must, sooner or later, lead to exhaustion. But these indispensable ingredients are exhausted in different proportions; and when the soil becomes specially deficient in any one of their number, the application of any substance containing that ingredient in abundance will work wonders. This

is believed to explain the reason why lime, gypsum, or guano produces such extraordinary results upon one soil and so very little upon another. But, notwithstanding the annual application of any one essential ingredient in which the soil was most deficient, if the constant robbery by grain-cropping be continued, the process of exhaustion still goes on with regard to the other ingredients, until some other essential element gives out, when an additional manure will be found necessary. The process may thus be continued until all the ingredients constituting fertility contained in the soil itself become entirely exhausted, when it will be found altogether sterile.

If, instead of pursuing a course like this, the produce of the land were to be chiefly consumed upon its surface, the soil would never become impoverished. Even although a portion of the elements of fertility were annually abstracted from it in the shape of grain or other vegetable product sent to market, the deficiency would be supplied by the ingredients which plants and animals, and even the earth itself, derive from water, air, and other extraneous sources. The skilful and wise cultivator so graduates the growth and disposition of his products as not to draw from the soil what is not in some manner fully restored to it. No system of agriculture has been discovered for accomplishing this purpose effectually but the simple and natural one of rearing such a number of domestic animals



as will be sufficient to consume most of the products of the farm upon its surface.

In estimating the value of landed property, there are two ways commonly adopted. It may either be taken at so many years' purchase of the actual rental, or its worth may be estimated on inspection by the exercise of a sound judgment. To value on the first principle is certainly very simple, but very unsatisfactory. Yet there are men largely employed as land valuers who adopt no other course. They value properties worth £150,000 to £200,000 in a couple of days' inspection, and that, too, even if the whole surface is covered with snow. To call such men "land-valuators" is a palpable misnomer. They who simply take the rental as their guide, do not value at all, they merely usurp the name and the office of a valuator; and proprietors suffer severely from their quackery, as their reports are frequently made the basis of most important transactions. Surely, if a property is cheaply let, and, still more, badly farmed, though the soil is naturally good, there can be no doubt that the "rental" is a false basis on which to ground a valuation. There are many circumstances to be attended to in making a comprehensive and true valuation. For example, suppose an estate of the annual value of £200 to be let on lease at £160, for a term of years, of which fourteen and a half are unexpired, in this case there must be deducted from the estimated price the present value of an annuity of £40 for fourteen

and a half years. Thus, if twenty-five years' purchase, or £5000, was the price agreed upon, £400 must be deducted. Also, where the property is subject to an encumbrance, in the shape of an annuity, the amount of the purchase-money should first be ascertained, and then the present value of the annuity should be calculated and deducted. Suppose the property to be subject to an annuity of £20 for twenty years, the value of this, in present money, can be easily ascertained by calculation, and, at £4 per cent., will be £260; or it may be known by reference to the public tables of annuities. A farm may be let at £300 a-year and yet be worth £500. *Rental*, therefore, is no safe criterion of *value*. True, the man who values on his own judgment and experience, independently of the rent-roll, incurs a heavier responsibility than he who merely adopts the rental and converts it into a capital sum. But then he has the satisfaction of knowing that he has done his duty to the satisfaction of his own conscience; that he has estimated the real intrinsic value; and that he is at once marked out as an authority. There are few operations, if indeed any, which require a greater extent of scientific and practical acquirements, a more comprehensive acquaintance with the agricultural systems of different districts, or a more accurate and almost intuitive judgment in regard to the capabilities of the soil, than the determination of the fee-simple value of an extensive landed property.

It should be observed, that, although the quantity of the land is the ground-work of an estimate, it has little to do in the scale of valuation. An acre of land may be worth in one place £5, and in another £50. However, the value of lands, aggregately considered, depends less on situation than on intrinsic quality, although situation has great influence, especially when the land lies near to populous towns, where, from the facility of disposing of the produce, and of obtaining an almost unlimited supply of manure, land naturally bad in itself is made to produce crops far superior to those obtained from soils naturally more fertile, where the advantages of situation do not exist.

To enter at length into any one subject would exceed the scope of the present work, and as the "valuation of landed property" would be sufficient in itself to occupy a book, we shall, for the present, content ourselves with simply observing that every valuer should, after giving a general description of the estate, give the data on which he has arrived at his decision. It is too frequently the case with valuers to give a slump valuation. This ought not to be tolerated. If a man is properly qualified, he need not stand in dread of being caught in error. The value should be put upon each acre of the property,—beginning with the first number of the enclosures and leaving off with the last. This will afford an opportunity for his valuations being checked. As the result of long experience, he will

have confidence in the accuracy of his judgment; but he will have no hesitation in confessing that there are cases in which, through his not hitting on what may be regarded as the average quality of the soil in any particular field, he might make a slight mistake. He knows he is not infallible, and that his general accuracy can well afford the acknowledgment of an error in judgment, should he inadvertently fall into one.

It may be remarked that "land," in a grant, comprises in law any ground, soil, or earth, but its primary sense is arable land. The meaning of this word has been explained in various Acts of Parliament, in the interpretation clause. It will, however, include all houses, mines, and buildings, also minerals, unless the words of the context clearly show that it is spoken of in contradistinction to the above extensive reading. It will have to be remembered that there is no such thing as appointing an heir, as the law decides the heirship; and if a man grant an estate by will or otherwise, the grantee or devisee is not his heir but his assignee. The right of disposing of an estate in fee simple by deed or will is now, after years of gradual progress, the indisputable privilege of every freeholder. There are necessarily exceptions to this rule, the exceptions being aliens, lunatics, infants, married women, and persons attainted of treason or felony; there are also certain purposes for which alienation cannot be made by deed, as for charitable purposes, unless

certain formalities are complied with. No devise of estates, for charitable purposes, can be made by will. Conveyances are now made of land by a simple deed, the features of which are the commencement of the deed detailing the names of the buyer and seller of the land, generally a recital of the seller's title and the contract for the purchase; the witnessing part detailing the consideration to be paid for the sale, and the acknowledgment of the receipt of the money in exchange for the land; and then the conveyance of the property, with such limitations as may form the subject of the contract, with covenants entered into by the seller, that he has a right to sell and convey the land, that it is not encumbered, and that the purchaser shall have quiet enjoyment of the land purchased, and that finally the seller will more effectually vest the land in the buyer if necessary, and do other acts for that purpose. Estates are liable, in the hands of the heir, for debts contracted in the life of a freeholder. Judgments and debts due to the Crown, registered and inserted in an index against owners of estates, are charges on the land which must be disposed of. Bankruptcy, or insolvency, is a species of involuntary alienation; the lands vest in the assignees of the bankrupt, or insolvent, for the general benefit of the creditors. In the event of no devise by will, land will descend to the heir of a freeholder. There is not such a thing as an heir to a living man, there can only be the heir apparent or the heir presump-



tive. The rules for descent of property are now so thoroughly understood, that difficulty can but rarely occur, and the chief difficulty is not the law, but the proof of the facts to establish the title of the heir.

At the close of the seventeenth century, the wealth of the country consisted principally of landed estates. But now the wealth of the nation is, to a very large extent, in the hands of the manufacturing and commercial classes. The once extensive possessions of many a noble house have been broken up into small estates suitable to the means of the more successful of the middle classes. Millionaires take the place of our hereditary lords and chiefs. We can hardly help heaving a sigh of sorrow at seeing the possessions of ancient title and estate, won by the valour or the wisdom of their ancestors, passing into other hands. But why grudge to men of talent and energy—men who have been the architects of their own fortunes—the more prominent position in life? The times change, and we must change with them.

An able writer has said that the highest value of affluence is the social influence which it confers, whereby the possessor may become useful to society by his example and precept. Many persons keep themselves poor by lavish expenditure, in the hope of being deemed rich, and enjoying the superiority which riches confer. The deception is necessarily of short duration; but had the party carefully saved

and accumulated, he might soon have become permanently rich. The mental anguish which a man feels when he loses part of a large fortune, proceeds from an imagined diminution of his influence and power, not from any physical privations that the lost wealth will create. Nor is such a notion fanciful; men who have been esteemed wise counsellors while rich, lose commonly their reputed wisdom, if they lose their property. This phenomenon was observed by Shakspeare, who accounts for it by saying—

“Men’s judgments are  
A parcel of their fortunes; and things outward  
Do draw the inward quality after them,  
To suffer all alike.”

That money is useless except for the physical enjoyments which its expenditure will produce, is the error of the poor; while persons who have experienced the intellectual gratifications which result from the retention of money, gain a better estimate of its value. The respect that attends wealth is as old as the Bible, which says—“If a man come unto your assembly with a gold ring and goodly apparel; and there come in also a poor man in vile apparel, and ye have respect to him that weareth the gay clothing, and say unto him, Sit thou here in a good place; and say to the poor, Stand thou there, are ye not partial?”

Till the close of the seventeenth century, the

wealth of the country consisted chiefly of landed estates. Now, however, the riches of the nation is, to a great extent, in the hands of the manufacturing and commercial classes. Accumulated capital must have an outlet, and as land is considered the safest and best investment, the tendency in England is towards its division. No doubt there are counties in which the estates of noblemen occupy a vast extent, and there are others where the richest monied men increase their domains by the addition of such estates as are offered for sale in the neighbourhood. Nevertheless, we still retain the opinion. One proof of the truth of what we advance is the generally acknowledged fact, that the most advantageous mode of disposing of an extensive estate is to sell it in divisions. It is thus that land associations make large profits. They purchase a property in its entirety and sell it in retail. Experience goes to prove that, in disposing of any extensive estate to secure the largest price is to sell it in lots. In support of this, we may instance the estate of Apple-cross, in Ross-shire, which, when divided in 1861 into three lots, purchased by Viscount Hill, Vice-Chancellor Sir John Stewart, and Lord Middleton, realized a sum exceeding £200,000, about 40 per cent. more than the price paid for it as a whole, by the late Duke of Leeds, not quite eight years previously. The estate of Auchnashellach, which formed one of these lots, Lord Hill bought for £78,000. His lordship spent

about £15,000 only in building a shooting-lodge, and having resolved last year to sell the property, the whole was divided into three lots, and fetched a total of £120,000. A small property near London, purchased some years since for £1,600, has been recently sold and realized in lots £21,980. It is nevertheless truly incomprehensible how some persons shut their eyes to this truth. It was but the other day that a very striking instance occurred. A London attorney sanctioned the sale of a beautiful property in the same northern county for £145,000, although duly-qualified and well-informed land valuers were of opinion that it would have realized at least £180,000, if sold in five or six lots. This is certainly a very glaring example of the imprudence of investing too much power in the hands of inexperienced persons.

This attorney should have known that capitalists cannot all invest in large properties, for in that case some would have to entangle themselves in the meshes which already bear down so many hereditary landowners; they would require to borrow on mortgage. He should have known also that small estates are comparatively seldom in the market, and that when they are, they are so much in demand, that full commercial value is readily given for them; indeed, in many instances very much more. Moreover, he should have known that there are numerous capitalists who can bid from £30,000 to £50,000 for a property who cannot bid £145,000; that in fact

there is never a tithe of the competition where such a large purchase-money as £145,000 is necessary to secure the estate.

By taking the gross assessment of the land under Schedule A of the income-tax returns for 1865, and the number of cultivated acres given by the agricultural statistics of 1866, it has been shown in the "Pall Mall Gazette," that the land rental of Great Britain was, according to such data, £1 17s. 1d. per acre; England and Wales being £1 17s. 9d., and Scotland £1 12s. 10d. At the same time it was pointed out that the agricultural returns took no cognizance of farms *under* five acres each, and that hill pastures were entirely excluded from the Board of Trade tables. It was also stated that the small holdings in England and Wales there was reason to estimate at 57,000 acres only, and that such an amount would not much influence the results when so wide an area as that of England was in question, and that the exclusion of hill pastures would probably affect the Scotch more than the English figures.

Aided by the parliamentary paper upon which we have recently drawn, the land rental for each county can now be ascertained with a degree of accuracy heretofore impossible. The lowest rented English county is Westmoreland, and the highest Middlesex. South Wales, however, is 5s. 7d. and North Wales 1s. 5d. per acre under the Westmoreland rent.



*Rent per Cultivated Acre in each County of England and in North and South Wales in 1865.*

COUNTIES.	No. of cultivated Acres.	Rent per cultivated Acre.	COUNTIES.	No. of cultivated Acres.	Rent per cultivated Acre.
		£ s. d.			£ s. d.
South Eastern :			West Midland :		
Surrey .....	278,733	2 0 3	Gloucester	598,271	2 3 2
Kent ... ..	711,826	2 5 11	Hereford ...	394,947	1 18 0
Sussex .....	576,927	1 14 9	Salop .....	621,616	1 16 9
Hants .....	640,002	1 12 2	Stafford .....	548,662	2 2 6
Berks .....	345,206	1 18 8	Worcester ...	368,381	2 6 5
			Warwick ...	444,718	2 4 4
South Midland :			North Midland :		
Middlesex ...	109,879	3 10 9	Leicester ...	432,424	2 6 2
Herts .....	322,989	1 16 11	Rutland ...	74,905	2 2 3
Bucks .....	377,178	1 18 2	Lincoln .....	1,387,826	2 0 8
Oxon .....	385,378	1 17 4	Notts .....	417,502	2 1 11
Northampton	522,736	2 3 0	Derby .....	463,920	1 18 11
Hunts .....	192,417	1 16 10	North Western		
Beds .....	242,290	1 16 6	and Yorkshire		
Cambridge	463,140	2 2 3	Chester .....	481,853	2 6 2
			Lancaster ...	708,827	2 8 4
Eastern :			York .....	2,477,004	1 15 9
Essex .....	789,641	2 0 5	Northern :		
Suffolk .....	775,404	1 15 4	Durham ...	399,566	1 11 7
Norfolk .....	1,009,087	1 18 5	Northumber-		
			land .....	656,989	1 9 9
South Western :			Cumberland	503,031	1 8 6
Wilts .....	636,786	1 16 6	Westmoreland	213,876	1 8 4
Dorset .....	398,599	1 18 10	Welsh : .....		
Devon .....	919,336	1 18 9	Monmouth	208,276	1 12 1
Cornwall ...	436,071	1 15 6	South Wales	1,310,710	1 2 9
Somerset ...	735,04	2 10 4	North Wales	973,964	1 6 11

*South Eastern Counties.*—Of the five in this division, two, Sussex and Hants, are below the average : the rent varied from £1 12s. 2d. in Hants to £2 5s. 11d. in Kent ; between the highest and the lowest county there was, therefore, a difference of 13s. 9d. per acre. As metropolitan counties, both Surrey and Kent must yield, irrespective of soil and kinds of culture, better rentals than the others.

*South Midland Counties.*—Here there are three counties under and five above the average—Herts.

Hunts, and Beds constitute the former section. Rentals throughout the division range from £1 16s. 6d. in Bedford to £3 10s. 9d. in Middlesex. The latter county appears to yield the best rents in the kingdom; at the same time, as previously noticed, it is the only one which suffered a depreciation in the aggregate valuation between 1865 and 1855. Middlesex rents are nearly double the Bedford and the Huntingdon rates. After Middlesex, but at a long interval, rank Nottingham and Cambridge.

*Eastern Counties.*—Suffolk is 2s. 5d. per acre under the average; Norfolk is slightly and Essex more decidedly beyond it. The last-named county increased its rental valuation during the ten years 1855–65 more than any other in England, that is to say, *proportionately* more. Between it and Suffolk there is very nearly 5s. per acre difference.

*South Western Counties.*—Though so far as the economic condition of the peasantry is concerned this division is the worst in England, the rents do not stand in the same category. Two counties, Cornwall and Wilts, are under the average, and three are above it. Somerset, indeed, is the most highly rented district of England, if we leave out of sight Middlesex. The range in this division is from £1 15s. 6d. in Cornwall, to £2 10s. 4d. in Somerset, hence the difference between the two is no less than 14s. 10d. per acre.

*West Midland Counties.*—The rents are good in

this division; only one county, Salop, is under the average. The rate varies from £1 16s. 9d. in Salop, to £2 6s. 5d. in Worcester, the difference of the extremes being equal to 9s. 8d. an acre. The hop-growing county of Worcester is rather higher rented than Kent, but it reckons only half the area of the latter.

*North Midland Counties.*—The rents here appear to be very much the same as the last division, except that no county is below the average. The lowest is Derby, £1 18s 11d., and the highest Leicester, £2 6s. 2d., the difference being 7s. 3d. per acre. Leaving out Leicester, the variation between the remaining counties is not great.

*North Western Counties and Yorkshire.*—Cheshire and Lancashire are the two counties yielding highest rents in the North of England. Causes which operate in the production of exceptionally heavy rents in Middlesex will be active in Lancashire. Yorkshire is marked by the lowest figures in this division. We cannot, unfortunately, discriminate the rents for the three ridings, because their valuations are not severally returned by the Inland Revenue department. Taking the whole breadth of the shire, which is nearly two and a half million acres, the rental was £1 15s. 9d., or 12s. 7d. less than Lancashire; the cultivated area of the latter was between *one-third* and *one-fourth* only of the former.

*Northern Counties.*—This is the lowest rented division of England. The five counties of which

it consists are each much under the average rental. They are, however, all very nearly on the same level. The lowest is £1 8s. 4d., Westmoreland, and the highest £1 11s. 7d., Durham; the difference of the extremes being 3s. 3d. per acre. Since hill pastures are excluded from the returns of the cultivated area, but not from the valuation, we may infer that the rates quoted are to some extent beyond the actual rents paid.

*Monmouthshire and Wales.*—This division is likewise materially under the mean rental of England and Wales. No county in England is so low as South Wales or as North Wales. What has just been said of hill pastures is equally applicable to the Principality; and very small farms are there a characteristic feature of rural industry. The two circumstances tend to exaggerate the rentals given in the table. The highest county is Monmouth, £1 12s. 1d., and the conterminous district of South Wales is 9s. 4d., or 40 per cent. under that rental. Here it will be seen from the table that we are speaking of an area as broad as Lincolnshire. Measured by the highest rent in the table, three cultivated acres in South Wales are worth rather less than one in Middlesex.

There is some evidence in these statistics to show that the counties which pay the highest rent are generally below the average in the proportion of their cultivated surface devoted to corn crops. Leaving out the four metropolitan counties and

Lancashire, as peculiarly influenced by their large town populations, it will be discovered that there are ten counties whose rents are above £2 2s. The average ratio of land under corn in the English counties was 32·2 per cent. of the total cultivated area; now, with one marked exception, that of Cambridgeshire, all in the following list either fell considerably under that proportion or only slightly surpassed it:—

COUNTIES.	Rent per cul- tivated Acre.	Per- centage Corn cropped	Difference as com- pared with Average.	COUNTIES.	Rent per cul- tivated Acre.	Per- centage Corn cropped.	Difference as com- pared with Average.
	£ s. d.				£ s. d.		
Cambridge	2 2 3	56.7	+ 23.5	Rutland ...	2 2 3	33.0	— 0.2
Chester .....	2 6 2	20.2	—13.0	Somerset ...	2 10 4	19.2	—14.0
Gloucester...	2 3 2	28.6	— 4.6	Stafford .....	2 2 6	22.8	—10.4
Leicester ...	2 6 2	26.8	— 6.4	Warwick ...	2 4 4	34.1	+ 0.9
Northampton	2 3 0	34.9	+ 1.7	Worcester ...	2 6 5	32.7	— 0.5

If we reverse this picture, and take ten counties which stand highest in respect of corn culture, it will be seen they all yielded less rentals than those named above. None here falls under 40 per cent. of corn-cropped land.

COUNTIES.	Rent per cul- tivated Acre.	Per- centage Corn cropped.	Difference as com- pared with Average.	COUNTIES.	Rent per cul- tivated Acre.	Per- centage Corn cropped.	Difference as com- pared with Average.
	£ s. d.				£ s. d.		
Bedford .....	1 16 6	46.7	+ 13.5	Hunts .....	1 16 10	49.1	+ 15.9
Berks .....	1 18 8	42.2	+ 9.0	Lincoln .....	2 0 8	42.8	+ 9.6
Essex .....	2 0 5	51.4	+ 18.2	Norfolk .....	1 18 5	44.5	+ 11.3
Hants .....	1 12 2	40.7	+ 7.5	Oxford .....	1 17 4	40.6	+ 7.4
Hertford ...	1 16 11	45.4	+ 12.2	Suffolk .....	1 15 4	52.3	+ 19.1

The majority of counties in this list are under the mean English rent (which is £1 19s. 2d.—ex-



cluding Wales), and all fall below the rentals of the previous table. At the same time, the ratios of corn-cropping here greatly exceeds the ratios, with the one exception already noticed, entered against the ten counties first named. These tables, of course, have no pretence of being exhaustive of the relation between the letting price of land and the description of culture to which it is dedicated, but they possess some interest as an indication.

The rental in Scotland is shown in the next table for the twelve counties whose increased assessments have already been tabulated :—

*Rent per Cultivated Acre in the undermentioned Counties of Scotland in 1865.*

COUNTIES.	No. of cultivated Acres.	Rent per cultivated Acre.	COUNTIES.	No. of cultivated Acres.	Rent per cultivated Acre.
Southern.—		£ s. d.	Northern :—		£ s. d.
Dumfries ...	204,589	1 13 5	Perth.....	316,766	1 19 1
Ayr .....	259,839	1 19 5	Forfar .....	228,195	1 15 2
Lanark .....	199,133	1 18 9	Aberdeen ...	550,586	1 0 8
Edinburgh	114,269	2 8 4	Argyle .....	111,356	2 10 1
Roxburgh ...	160,352	1 15 5	Inverness ...	118,461	1 12 5
Haddington	106,908	2 2 0			
Fife .....	220,168	2 1 4			

*Seven Southern Counties.*—Each county exceeds the average rental of Scotland. Dumfries, the lowest rented of the group, by 7d. only; but Edinburgh is the highest rented by 15s. 6d., or 44 per cent. beyond the mean. The manufacturing county of Lanark is nearly 10s. per acre under the Edinburgh rent.

*Five Northern Counties.*—Two are under the average, Aberdeen and Inverness—the one by 12s. 2d., the other by 5d. only. The highland county of Argyle stands the highest, the rent there coming out at £2 10s. 1d., or 17s. 3d. per acre above the average. These figures, we conceive, must, from the exclusion of hill pastures from the returns, be taken with great caution. The total extent of Argyleshire is 2,083,000 acres, and the cultivated surface returned is not much more than one-twentieth part of that quantity; it is less than a twentieth in Invernessshire. In Aberdeenshire it is nearly half.

We may observe, in concluding this part of the subject, that one-half of the superficies of Great Britain is under culture, 28,705,000 acres, or 50·4 per cent. out of 56,964,000 acres; but that the proportion varies greatly in different parts of the kingdom; in England (inclusive of Monmouth) it is 68·0; in Wales, 48·3; and in Scotland, 30·5 per cent.

A knowledge of the culture and management of growing woods and plantations forms an important item in estate management. Timber is of very great value in commercial communities, and its cultivation ought never to be neglected. The amenity and value of landed property are so linked together that, in ordinary cases, the one cannot be increased without a greater or less addition being made to the other also. It has been proved by

experience that in proportion to the extension of well laid out plantations on exposed estates, with but little forest or shelter, the farms advance in yearly value. We have known property nearly double in value through judicious planting. Every owner of an estate would do well to keep up a supply proportionate to the extent of his property; but it ought not to be overlooked that there is a very great difference between necessary shelter and injurious shade. It is quite practicable so to lay out woods on landed property that the greatest amount of agricultural benefit may be derived from them, while at the same time they may be made ornamental and profitable. There are estates within our knowledge on which a proper increase of shelter would add many bushels of grain to the yield per acre. In hop-growing districts young plantations of larch, ash, and oak are in requisition for hop poles. The mountain ash, too, the best of all English woodland produce for pattering crates, happens to be also well adapted for barrel hoops, a source of considerable profit. Moreover, its beauty and utility recommend its employment in game preserves. Planting is too much neglected in this country. It is the positive duty of a landed proprietor, who cuts down the tree which his grandfather planted, to put a young one into the ground, as a legacy to his own grandchildren; he will otherwise leave the world worse than he found it. Sir Walter Scott, who was himself a considerable

planter, has eloquently denounced that contracted feeling which prevents proprietors from thus improving their estates because the profits are distant; and we cannot perhaps do better than give a short passage from the essay in which he enforces the duty of planting waste lands:—

“The indifference to this great rural improvement arises, we have reason to believe, not so much out of the actual lucre of gain as the fatal *vis inertiae*—that indolence which induces the lords of the soil to be satisfied with what they can obtain from it by immediate rent, rather than encounter the expense and trouble of attempting the modes of amelioration which require immediate expense, and what is perhaps more grudged by the first-born of Egypt—a little future attention. To such we can only say that improvement by plantation is at once the easiest, the cheapest, and the least precarious mode of increasing the immediate value, as well as the future income of their estates; and that therefore it is we exhort them to take to heart the exhortation of the dying Scotch laird to his son:—‘Be aye sticking in a tree, Jock—it will be growing whilst you are sleeping.’”

Woodlands are of four kinds, severally called *coppices* or copses, which contain underwood merely; *mixed wood*, consisting both of timber and underwood; *plantations* or groves, which contain nothing but trees; and *forests*, or extensive tracts of country covered with timber. This latter class does not

of course exist, except on a very small scale, in England.

*Coppices*.—These are cut in early stages of their growth, varying according to the description of wood for which there is a demand in the neighbourhood, as for baskets, hop-poles, hurdles, stakes, laths, bavins, &c.

The principal points to be attended to in the managing of coppices are:—

1st. *The Fencing*.—This must always be preserved in good order, for it is better to allow cattle to run loose in the ripe wheat-field than in a young plantation; the bite of their teeth injures the plants more than anything else.

2nd. *The Drainage*.—Oak always flourishes best in lands moderately moist, but by no means wet. All coppices should be well drained with open drains: the roots of the trees would choke any other.

3rd. *Shelter*.—Underwood requires shelter, and it is customary to plant timber trees for that purpose either amongst it or surrounding, or on the exposed sides of it.

4th. *The Period of Cutting*.—This varies according to the nature of the demand, whether for very young or large grown wood. Coppices are, in some situations, cut at ten years' growth, and in others they are allowed to stand twenty-five years. A covenant should always exist in a lease restraining the tenant from cutting earlier than is customary in the country.



5th. *Season for Cutting*.—There are many opinions respecting the proper season of the year for cutting underwood, but there is one rule which for the advantage of the seller should be steadily adhered to, namely, that the older the wood is the later in the spring it should be cut. When old wood is cut early in the winter, and a severe season follows, the damage done to the old stock and to the standards is very great. On the other hand, it is supposed to be for the interest of the buyer that all wood should be cut in the most stagnant state of sap, as being in that case more durable; and in all cases where bending is required, such as hurdles, hoops, and even dead hedges, the wood cannot be cut too early in the winter, for if cut when the sap is rising it becomes brittle and unfit for those purposes.

6th. *Application and Uses*.—In the oak coppice, the principal profit is derived from the bark. Copsewood is also used for making charcoal, pyroligneous acid, ash-poles for sheep-cribs, rind-hoops for barrels, hanks for ships' rigging, hazel sheep-hurdles, spars for thatching, pea and bean sticks, and dead hedges. Alder, willow, birch, &c., are used for fencing, rails, rafters, clogs, and coal-pit requirements.

England owes her wooded appearance rather to her thick hedgerows and parks than to the remains of her old forests, but many of the trees which diversify our landscape at the present day were to be found in those woodlands before the Norman

conquest. The oak, the beech, the elm, the hazel, the Scotch fir, the ash (the favourite tree of the Anglo-Saxons), were indigenous. Cæsar, indeed, excepts the *fagus et abies* from the timber which he found in Britain; but by these he meant the *fagus castanea*, or chesnut, and the silver fir. These we owe to our Roman masters. From them also we have derived the cherry and the vine.

It ought not to be overlooked that mistletoe is an article of commerce of considerable importance. From the statistics of this peculiar branch of trade it would seem that Herefordshire produces the largest supply of any one county in England, and this finds its way into Liverpool, Manchester, Birmingham, and likewise to London. As many as 112 or 114 tons have been sent out of this western county in one season, besides many tons forwarded to foreign countries; and the trade is annually increasing both there and in the home counties, from whence the London markets are chiefly supplied. The price of mistletoe varies; but from 4s. to 5s. the cwt. is, perhaps, about the average asked. At first sight, these figures appear very large for an article of no intrinsic value; but when we consider the number of houses amongst the working, and what may be called the lower middle classes, which at this season of the year contains a sprig of mistletoe, our surprise may be somewhat lessened.—*Once a Week*.

It is only in a few localities in England that any extensive tracts are now kept in woodlands, but there are situations where such is by far the most profitable treatment. It should be borne in mind, too, that the intrinsic value of estates is enhanced by woodland shelter. The management of woods, where there are both small and large trees and underwoods, though not requiring the skill and attention that an arable farm does, nevertheless requires considerable care. It is principally necessary that the woods be properly fenced, and that the fences be ever after kept in thorough repair; that the trees shall not be damaged by the inroads of stock; that drainage and other practical modes of improvement should not be neglected; that the wood should be divided into regular falls or portions, so as to furnish a clear annual income, with as much certainty as arable land; and that, when sold, every pains be taken to procure their full value. By these means, and the reservation of an adequate share of large timber, the proprietor will generally have a safe and improving investment of his capital.

*Dates on which the Foliage of various Trees commenced expanding.*

Mr. T. L. Plant has published the following table, showing the earliest and latest dates on which the foliage of various trees commenced expanding, compared with the date of foliation in the year 1867:—

	Earliest.	Latest.	1867.
Balsam poplar ( <i>Populus balsamifera</i> ) ...	March 6	April 19	April 15
Larch ( <i>Abies larix</i> )... ..	March 21	April 14	April 14
Horse-chestnut ( <i>Æsculus hippocastanum</i> )	March 17	April 19	April 19
Sycamore ( <i>Acer pseudo-platanus</i> ) ...	March 28	April 23	April 25
Damson blossom ( <i>Prunus domestica</i> ) ...	March 28	May 13	April 17
Lime ( <i>Tilia Europæa</i> ) ... ..	April 6	May 2	April 30
Beech ( <i>Fagus sylvatica</i> ) ... ..	April 19	May 7	May 1
Spanish-chestnut ( <i>Castanea vesca</i> ) ...	April 20	May 20	May 3
Oak ( <i>Quercus robur</i> ) ... ..	April 10	May 26	May 6
Ash ( <i>Fraxinus excelsior</i> ) ... ..	May 13	June 14	May 16
Mulberry ( <i>Morus nigra</i> ) ... ..	May 12	June 23	May 14

Experience has shown that the time when trees are felled has much influence upon the condition of the wood. A trial was made with four pieces of oak cut down in December, January, February, and March. A tin ring was fixed at one end of each piece. These rings were filled with water. The wood cut in December did not allow any water to pass. The January wood, after forty-eight hours, allowed a few drops to pass. During the same time the entire quantity ran through the February wood, while the water passed through the March wood in two hours and a half.

When timber is felled, either too young or too old, it is liable to become worm-eaten at a much earlier period than if cut at the proper age. At the time the duramen, or red wood, is fully developed, but before the circulation of sap has completely ceased in its vessels, the tree is in the best possible condition to be felled. The particular age at which each species of timber will have reached this state, must depend, to some extent, on circumstances. Trees which have been badly thinned during their growth, will come to an early and partially unna-

tural ripeness; while those which have always been well exposed to atmospheric agency, will take a much longer period to arrive at maturity. Under suitable circumstances, the ages mentioned in the following list will be found about the average period at which to cut the different species of timber trees:—

Species.	Years.	Species.	Years.
Oak ( <i>Q. pedunculata</i> ) ... ..	100	Lime ... ..	80
„ ( <i>Q. sessiliflora</i> ) ... ..	90	Horse Chestnut ... ..	80
Wych Elm ... ..	100	Silver Fir ... ..	80
English Elm ... ..	90	Spruce ... ..	70
Ash ... ..	90	Scots ... ..	65
Sycamore ... ..	90	Larch ... ..	60
Beech ... ..	90	Poplars ... ..	40

It would be erroneous to suppose that the various kinds of trees stated above are sure to become diseased immediately after the age which has been assigned to each. The oak, we know, lives occasionally to the age of a thousand years; and other hardwood species live, in some instances, several hundred years. But, in growing wood for profit, and in managing it judiciously, the age here stated will be found to approximate very nearly to the time at which each species may be felled with the greatest advantage.

Osier willows, too, are cultivated for the purpose of basket-making. Among the varieties most approved are those known as the Dutch willow, the purple willow, the round-leaved, and the long-leaved triandrous willow. They will grow in a great variety of soils if these be only moist enough; but



deep, rich, moist intervals, or low alluvial lands, lying on the margin of streams, especially such as have a southern exposure protected from high winds, are most suited to them. They grow well on moist soil, but it should not be too wet, and in many cases draining the land is advisable, so that it may be ploughed deeply, and prepared as if for corn or any other highly-cultivated farm crop. It is then ready to receive the cuttings. The slips or cuttings are about two feet long, and should be set perpendicularly in the soil one foot apart, in rows about three feet apart. They should be kept clean of weeds the first year or two, either with the hoe or the cultivator. The osiers may be cut for the first time in about two years after they are set, and may afterwards be cut annually early in the spring.

It is proverbial that trees of the same species will not flourish in succession in the same place. Hence, if a worn out peach orchard is to be removed, and young trees of the same species are to occupy the same ground, instead of being planted in the holes from which the old ones were taken, they must be arranged in rows intermediate to the old ones. So likewise in regard to all fruit trees, unless a suitable period has been allowed for producing the decomposition of the roots of the removed trees, and thus supplying the earth with fresh manure. In forest lands, the new growth seldom resembles altogether that which has been felled. Hard wood

frequently succeeds the pine and hemlock, while the pine and cedar, in innumerable instances, succeed the primitive growth of hard wood. In agreement with this tendency, we may see the strawberry and raspberry, and some other plants, sending out their roots or stolons to establish a new progeny in a soil they had not previously exhausted; and thus by their own instincts changing their locality.

An opinion has long prevailed that a climate cannot be changed to suit certain plants, but that the constitution of those plants may be so altered as to be adapted to a given climate; and the process by which this effect is believed to be gained is called acclimatising. But, notwithstanding this opinion, in most instances the truth is just the reverse, and the proposition should stand thus: "The constitution of plants, in general, cannot be altered to suit climate, yet climate may be altered to suit plants." When we limit the word "climate," however, to the conditions of the atmosphere in which birds and quadrupeds move, we express a particular state of things which concerns those parts of the creation, but we omit what is essential in considering the climate necessary to plants. And hence it is that, in the popular sense of the term "meteorology," cultivators derive less benefit from that science than it is capable of furnishing. The climate in which the roots of plants or trees are placed is at least as important, if not more so, to their successful growth, than that which sustains their branches,

leaves, flowers, or fruits. It may with propriety be called "terrestrial," in contradistinction to "atmospheric" climate, and is one which it is in the power of almost any farmer or gardener to improve by artificial means.

The roots of plants, it is well known, although they burrow below the surface of the ground, are not on that account insensible to the influences which are felt by the stem and branches above. On the contrary, they are fully as sensitive to the extremes of moisture and dryness, as of heat and cold. Thus, if leaves and flowers wither beneath the scorching air, so do roots when the earth around them becomes parched; if the verdant foliage rejoice in the invigorating rain-drop, not less is it grateful to the earth-bound root; if cold check or destroy the blossom, and compel the foliage to shrink and perish, in like manner also the roots are affected. On the other hand, that warmth which causes the blossom to unfold, and the leaf to open to the influences of the gentle breath of spring, is equally propitious to the root under ground, exciting it to growth, and putting into action all that dynamic force by which the leaves and flowers are nourished. Nor is the access of air less important to one than to the other; both extremities of plants feed on air—the roots more than the leaves. Put a plant in a place where air can have no access to its leaves, and they drop off, to be followed by the decay of the stem. Roots existing under the same

circumstances will gradually shrink and die. Hence it is that the condition of the air which circulates in the ground, the temperature of the soil itself, and the moisture contained therein, require to be attended to as well as the condition of the atmosphere above; and hence the importance of underground climate being thoroughly understood.

The mode in which land should be prepared for planting must be regulated, to some extent, both by the original character of the soil, and by the kind of wood about to be planted. In Highland districts, for example, it would be out of the question to think of either ploughing, digging, or trenching the rough, steep ground intended for plantations; and, consequently, on the score of necessity, as well as economy, slit-planting on the natural heath surface is, in those places, almost universally adopted. The only exception, indeed, is in the case of hardwood plants, which, on some occasions, are pit-planted, or, at least, put into the ground in the best way which its stony nature will permit of. In low lying situations, on the other hand, and when very rapid growth is desired, the land should, in all cases, be well wrought by the plough or spade previous to its being planted. The particular system adopted in cultivating the soil must vary according to circumstances. A thin soil, with a solid stratum of sand, boulder-clay, or ferruginous moorband-pan, would be greatly injured by the surface being trenched down, and a poor, worthless material brought to the top in its place. But,

if the boulder clay or ferruginous induration is well loosened, without being brought to the surface, the result will be very different; for, in this case, the young plants will have sufficient good soil around their roots to start them in growth, and, after gaining strength, they may ramify even in the broken up subsoil. In almost every instance, a stiff, tenacious soil will be benefited by culture, and produce a much larger quantity of timber—particularly if it be hardwood—within a given time, than could be obtained were it planted without preparation. On thin, gravelly, sharp land, and in cases, also, where there is much exposure to winds, trenching, or any kind of culture, is decidedly injurious to larch or fir trees, though highly beneficial to more umbrageous, and, therefore, more voracious feeders on atmospheric elements. There is so intimate a connection between the food of plants, as obtained from the soil and from the atmosphere, that there is considerable danger of injury being done, if the proper balance between the two is destroyed.

From the following table it is obvious that all soils cannot be alike suitable for every kind of timber. Elm and limetree, for instance, contain a much larger proportion of potash than oak, beech, birch, or fir woods; and it is well known to practical foresters, that the former species require a finer soil than is necessary for the latter. The wood of the poplar, again, it will be observed, contains both a large percentage of potash and phosphoric acid; and we



know that it is only on good land that it grows luxuriantly. The large proportion of magnesia and oxide of manganese, in fir and larch woods, indicate that they can be grown on soils that are somewhat peculiar in their nature; and it is known that they succeed where more valuable kinds of timber fail. It is also evident that larch requires a fully better soil than Scotch fir, particularly in respect of the amount of potash it contains; and this completely agrees with practical experience.

*Adaptation of Trees to Different Situations.*

Forest Trees.	Potash.	Soda.	Magnesia.	Lime.	Phosphoric Acid.	Sulphuric Acid.	Silica.	Peroxide of Iron.	Chlorid. of Sodium.	Chloride of Potassium.	Analyst.
Oak—wood ...	5.65	3.77	3.01	50.58	2.32	0.78	0.52	0.38	0.02	...	Denningen.
Oak—bark... ..	3.50		0.80	47.50	...	0.30	1.10	...	0.03	...	a. Berthier.
Oak—leaves ...	27.40		3.60	16.70	10.90	...	14.50	1.80	...	...	De Saussure.
Elm—wood ...	21.92	13.72	7.71	47.80	3.33	1.28	3.07	1.17	...	...	Wrightson.
Elm—bark ...	2.22	10.09	3.19	72.70	1.59	0.62	8.77	0.82	...	...	Wrightson.
Limetree—wood ...	35.86	5.23	4.15	29.93	4.85	5.30	5.26	7.97	1.49	...	Hoffman.
Limetree—bark ...	16.14	4.53	8.03	60.81	4.02	0.75	2.27	1.24	2.21	...	Hoffman.
Beech—wood ...	11.80	2.04	8.42	47.25	3.29	1.01	1.09	0.60	0.16	...	Liebig.
Beech—bark ...	2.00		17.10	37.50	2.70	...	9.20	0.30	...	...	Hertwig.
H. Chestnut—wood	10.10		3.20	42.60	1.50	1.20	7.50	3.00	0.07	...	Berthier.
Birch—wood ...	12.70		2.50	43.80	3.60	0.40	4.80	0.40	0.03	...	Berthier.
Poplar—wood ...	32.60		3.30	18.30	10.10	...	3.30	1.50	...	...	De Saussure.
Poplar—bark ...	18.80		1.00	35.10	3.20	...	4.00	1.50	...	...	De Saussure.
Poplar—leaves ...	28.50		1.40	21.40	4.20	...	11.50	1.50	...	...	De Saussure.
Scotch fir—wood...	2.79	15.99	19.76	31.74	1.93	3.04	3.04	3.51	1.48	1.48	b. Bottinger.
Scotch fir—bark ...	1.90		2.40	38.60	7.10	...	17.30	0.60	...	...	Hertwig.
Scotch fir—leaves	10.50		3.10	36.80	4.70	0.90	11.60	0.50	...	...	Hertwig.
Larch—wood ...	15.24	7.27	24.50	26.97	1.79	3.60	3.60	4.25	0.92	0.92	c. Bottinger.

a. Oxide of manganese in ash of oak bark 7.20 per cent.

b. Oxide of manganese in ash of fir wood 18.17 per cent.

c. Oxide of manganese in ash of larch wood 13.15 per cent.

In transplanting, always be careful to preserve the earth which adheres to the roots of the plants, cutting off only the tap-root, and cautiously pruning, with a sharp knife, such of the fibrous roots as have been injured in moving, for these must be preserved, as the immediate conductors of nourishment from the earth. Should the plants be put into the earth by pitting, let the fibres of the root be carefully spread out, in a well-prepared pit or hole, and cast that mould about the roots which was taken from the surface, as the most fruitful. Never set the plant deeper in the earth than it was previously to its removal, for by doing so you will retard its growth at least, if not totally destroy it; farther, if the roots be sufficiently covered, so as to hold the plant steady and erect, it is enough; the lateral fibres will then have the most fruitful pasture, and, as to the tap-root, that will invariably find its way downwards. Young trees should be watched, and those which need it supported in time by stakes, since most roots covet the air, and become loose and shaken if neglected.

It is an old idea that, in planting, it is necessary to set that side of the plant which stood to the southward in the nursery, towards the same aspect in the permanent plantation, the vegetable pores on that side being more open and susceptible of cold, and thence liable to be chilled and starved by the northern air; and this notion seems to be confirmed by the common growth of moss on the north side

of oaks, whilst on the opposite side the bark is clear and shining. Planters should provide themselves with a brush and some colouring, with which to mark the south side of each plant, on taking it out of the earth.

In removing older plants, like trees and shrubs which have been undisturbed for a long time, the utmost care is required in taking them up, to prevent the loss of the small fibrous roots which often extend to great distances from the trunk. The growth of the stem, or that part of the trunk above ground with its leaves and branches, is in proportion to the extent of the roots, and the injury which the latter sustain in transplanting may be counteracted in a measure by trimming off a corresponding portion of the top. The laceration or breaking of the roots checks the growth of the top in proportion to the injury or loss sustained. In the natural condition of the tree there are only roots enough to absorb the nourishment required by it, and when a part of these is cut off, or seriously injured, the remainder cannot, of course, furnish sap enough for the whole tree. In this case, if a part of the top be removed, less sap will be required, and as the remaining roots can supply all that is necessary, the tree may be saved. One method of obtaining good shrubs and trees for ornamental purposes is to sow the seeds in beds properly prepared. The soil used for this purpose should be deeply trenched and richly manured to promote rapid growth. It is

most convenient to lay out the beds from three to five feet wide, and to have the rows run across. Early autumn is generally thought to be the best time for sowing, though some prefer midsummer. The seeds of each species may be sown soon after they have become fully ripe.

In an agricultural point of view, the great objections to the excessive growth of timber are that it deteriorates the soil by increasing its humidity, and, by obstructing its effectual cultivation, prevents the full benefits being derived from the adjoining land. However, due regard to a choice of trees will, in a great measure, obviate these evils. It has been ascertained, by careful experiments, that some trees cause more injury to the soil than others, as well by the greater quantity of moisture they create as by the extension of their roots and branches, and the structure of their leaves. Of all trees, Scotch fir exhales the least moisture—the English oak, the beech, and the ash stand next—the elm is very objectionable in this respect, as well as from the numerous suckers it sends out from the spreading roots. Planting should never be executed by contract; because, although it may be agreed that the plantation is to be made over at a fixed period, with a certain number of trees then alive, yet, from the ground not being properly prepared, many of the plants will make but slender shoots for several years. If the pitting system be adopted, the hole, if not carefully made, will retain the water

like a cup; and the result will be that a great part of the roots will perish, and then the plant itself will become sickly, or perhaps die; at all events, it will languish and pine, and be very slow in making any forward push. Whilst upon the subject of timber, probably the following rules for its measurement may not be out of place:—

## TO MEASURE ROUND TIMBER.

Multiply the length in inches by the square of  $\frac{1}{4}$  the mean girth in inches, and the product, divided by 1728, will give the contents in cubic feet.

*When the length is given in feet, and the girth in inches, divide by 144.*

*When all the dimensions are in feet, the product is the content without a division.*

Or,  $\frac{L \times C^2}{16} \div 144$ , where L is the length in feet, and C half the sum of the circumference of the two ends in inches.

EXAMPLE.—The girths of a piece of timber are 31·416 and 62·832 inches, and its length 50 feet; required its contents.

$$\frac{31\cdot416 + 62\cdot832}{2} \div 4 = 11\cdot781, \text{ and } 11\cdot781^2 \times 50 \div 144 = 48\cdot1916$$

cubic feet. *Ans.*

$$\text{Or, } \frac{50 \times 47\cdot124^2}{16} \div 144 = 48\cdot1916 \text{ cubic feet. } \textit{Ans.}$$

To compute the solidity of round timber, when the tree tapers or is unequally thick, girth the tree



in as many places as is thought necessary, then the sum of the several girths, divided by their number, will give the mean circumference, the fourth part of which being squared and multiplied by the length will give the solid contents.

#### TO MEASURE SQUARE TIMBER.

Multiply the length in inches by the breadth in inches, and the product by the depth in feet ; divide by 144, and the quotient is the content.

NOTE.—*When all the dimensions are in feet, omit the divisor of 144.*

#### BOARD MEASURE.

Multiply the length by the breadth, and the product is the content.

NOTE.—*This rule only applies when all the dimensions are in feet. When either the length or breadth are given in inches, divide their product by 12 ; and when all the dimensions are in inches, divide it by 144.*

Pine spars from 10 to  $4\frac{1}{2}$  inches in diameter inclusive, and spruce spars, are to be measured by taking the diameter, clear of bark, at one-third of their length from the large end.

Spars are usually purchased by the inch diameter; all under 4 inches are considered *poles*.

Spruce spars of 7 inches and less should have 5 feet in length for every inch diameter. Those above

7 inches should have 4 feet in length for every inch diameter.

*Comparative Weight of Timber in a Green and Seasoned State.*

Timber.						Weight of a cubic foot.	
						Green.	Seasoned.
						lbs. oz.	lbs. oz.
English Oak	...	...	...	...	...	71·10	43· 8
Cedar	...	...	...	...	...	32·	28· 4
Riga Fir	...	...	...	...	...	48·12	35· 8
American Fir	...	...	...	...	...	44·12	30·11
Elm	...	...	...	...	...	66· 8	37· 5
Beech	...	...	...	...	...	60·	53· 6
Ash	...	...	...	...	...	58· 3	50·

On many a well wooded estate, the annual value of bark amounts to a considerable sum. At one time, when there was a great demand for any sort of bark capable of tanning leather—even in a very imperfect manner—willows, chestnuts, and mountain ashes, were occasionally peeled. But now, the trees which are barked are chiefly the oak, the larch, and the birch. These are the only kinds which yield sufficient tannic acid to render barking anything like profitable. Oak bark is by far the best of the three; but both larch and birch barks have their special qualities, and when used in the tan-pit, along with a right proportion of the former, their tanning properties are very good. It is mainly on the bark of the oak, however, that the tanner depends in regulating the strength of his tan-steeps. He may use the inferior kinds of home-grown bark;

or he may employ *terra japonica*, sumach, *velonia*, *divi-divi*, and other imported materials; but he is well aware, that while he can hasten the tanning process very considerably by the use of these strongly astringent substances, he must trust largely to oak bark if he is to produce a first-class leather. By having a proper quantity of oak bark in the *tan-pits*, and by allowing the hides to remain long enough in it, he is sure to have leather of a light fawn colour, which, when cut, will have a solid marbled texture, the distinguishing features of a first-class leather. But if too much *terra japonica*, or of some of the other imported tanning substances, is used, the leather will have a dark fawn colour, and be of a soft, *bibulous*, inferior quality. Of necessity, then, the tanner must have a supply of oak bark. And though he imports large quantities from Belgium, Holland, America, and other countries, yet he must look for the principal part of his supply from home forests—experience in past years having proved that for every ton imported there are nearly eight tons of home bark brought into the market.

A few remarks on the practical uses of leaves may not be without their value. An autumnal or old leaf yields, upon analysis, a very much larger proportion of earthy matter than a vernal leaf, which, being yet young, has not received within its cells any considerable deposit. It will be found, also, that the leaves contain a very much higher

percentage of mineral matter than the wood of the trunk. The dried leaves of the elm contain eleven per cent. of ashes (earthy matter), while the wood contains less than two per cent.; the leaves of the willow eighteen times as much as the wood; the leaves of beech an excess over the wood a small fraction less; the leaves of the European oak nineteen times as much as the wood; and those of the pitch pine twelve times as much as the wood. It is very plain from these facts, that, in forests, the mineral ingredients of the soil perform a sort of circulation; entering the root, they are deposited in the leaf; then, with its fall to the earth, and by its decay, they are restored to the soil, again to travel their circuit. Forest soils, therefore, instead of being impoverished by the growth of trees, receive back annually the greatest proportion of those mineral elements necessary to the tree, and besides, much organized matter received into the plant from the atmosphere; such soils, therefore, are gaining instead of losing. If the owners of parks or groves, for the sake of neatness, or to obtain leaves for other purposes, gather the autumnal harvest of leaves, they will in time take away great quantities of mineral matter, by which the soil ultimately will be impoverished, unless it is restored by manures. Leaf manure has always been held in high estimation by gardeners. But many regard it as a purely vegetable substance; whereas, it is the best mineral manure that can be applied to the soil. What are

called vegetable loams (not peat soils, made up principally of decomposed roots) contain large quantities of earthy matter, being mineral-vegetable rather than vegetable soils.

*A Table shewing the Number of Trees required per Imperial, Scottish, and Irish acres, from 1 to 30 feet distance between each plant.*

IMPERIAL ACRE.				SCOTTISH ACRE.				IRISH ACRE.			
Distance.	Number.	Distance.	Number.	Distance.	Number.	Distance.	Number.	Distance.	Number.	Distance.	Number.
1	43,560	12	302	1	54,760	12	380	1	70,560	12	490
1½	19,360	12½	270	1½	24,338	12½	350	1½	31,360	12½	452
2	10,890	13	257	2	13,690	13	324	2	17,640	13	417
2½	6,970	13½	239	2½	8,761	13½	300	2½	11,209	13½	385
3	4,840	14	222	3	6,084	14	279	3	7,840	14	360
3½	3,556	14	207	3½	4,470	14½	260	3½	5,760	14½	335
4	2,722	15	193	4	3,422	15	243	4	4,410	15	316
4½	2,151	15½	181	4½	2,704	15½	228	4½	3,484	15½	292
5	1,742	16	170	5	2,190	16	214	5	2,822	16	275
5½	1,440	16½	164	5½	1,810	16½	201	5½	2,332	16½	260
6	1,210	17	150	6	1,521	17	189	6	1,960	17	244
6½	1,031	17½	142	6½	1,296	17½	178	6½	1,670	17½	234
7	889	18	134	7	1,117	18	169	7	1,440	18	217
7½	774	18½	127	7½	973	18½	160	7½	1,254	18½	206
8	680	19	120	8	855	19	151	8	1,102	19	195
8½	603	19½	114	8½	758	19½	143	8½	976	19½	185
9	537	20	108	9	675	20	137	9	871	20	176
9½	482	22	90	9½	606	22	113	9½	782	22	146
10	435	24	75	10	547	24	95	10	705	24	123
10½	395	26	64	10½	496	26	81	10½	640	26	105
11	360	28	55	11	452	28	70	11	583	28	90
11½	329	30	48	11½	414	30	60	11½	533	30	79

The following mode of measuring an acre may be useful to some of our readers. In land measure, 30¼ square yards make 1 square rod; 40 square rods make 1 square rood; 4 square roods, 1 acre; 640



acres, 1 square mile; 4,840 square yards, or 160 rods, make 1 acre. In measuring an acre by yards, the usual practice is to trace off 70 yards in length and 70 yards in width. This is a rough way, which may be considered near enough for practical purposes; but as 70 yards either way make 4,900 square yards, it exceeds 1 acre by 60 yards. To determine an accurate acre, measure 70 yards in length by 69 1-7th yards in width. The same result may be arrived at by measuring 220 feet in length and 198 feet in width; or by measuring  $73\frac{1}{3}$  yards in length by 66 yards in breadth.

It may be here mentioned that broom, which is commonly believed to be almost worthless, is of considerable value. It is raised from seed like furze. The Spanish is far preferable to the English, the flowers being finer, and the broom attaining a greater height. On good land, however, it is most pernicious, shedding no leaves to its parent earth, but continually sucking out its heart. The case is different on black or white blowing sands; in such cases broom may be a marketable commodity for besoms or fuel. Broom makes good thatch too, and, if cut in blossom and preserved until winter, is good both as food and medicine for sheep.

Of aquatics, we have, amongst other kinds, the alder, willow, sallow, and osier. Of the alder, there are two species; the common, which delights most in wet ground, and the black, which is better calculated for such as is more high and dry. Old alder,

of considerable size, is very valuable for piles, trunks, sluices, &c., in which state, lying continually under water, it becomes nearly as hard as stone, but exposed above ground it soon decays. Alder is raised in all the various modes, but the best is by suckers, which it puts forth plentifully, or by roots of eight or ten inches round, and about two feet long, one end being plunged in mud. Set them at four or five feet distance, and when of one year's growth, cut them to the stumps, whence they will spring in clumps, and shoot into useful poles. Sets are not to be cut until of competent size, and only in winter, which is the proper season for all aquatics, on account of their pithy substance; and they ought to be well grown, that the succeeding shoot may receive no prejudice. It would be useless to enumerate all the varieties of the willow tribe, since most probably the old denominations are now obsolete, and were perhaps merely local. The divisions into upland and lowland are sufficient, and probably any difference of quality in the wood arises merely from the ground in which it grows; and each of the species will succeed interchangeably in the other's place; it is the same with the weeping willow, which I have seen of vast size in upland situations.

The propagation of willows is easy and well known. The stakes for planting should be immersed in water for two or three days after they are cut off the intended length, and cleared of twigs. Plant in February, and the beginning of March,

stakes or truncheons cut sloping at both ends ; if large, or near a foot in girth, set them three or four feet deep in the earth, making the hole with a stake and beetle, or iron crow ; if smaller, of proportionate depth, and from ten to twenty feet distance, at discretion.

Before passing on to another subject we would say a word on the important operation of barking. Good hay weather, with now and then a gentle shower, is suitable ; but continued rains very detrimental. This work is performed by hay-men, or persons whose proper calling it is, and not only the trunk of the tree but all the branches, to those of an inch in diameter, or even less, are stripped of their bark ; the chief art of performing such operation is to take off the bark in as long and entire strips as possible, both for the facility of removal and of being more conveniently thrown across the *horses* to dry. In the process of drying due attention must be paid to turning the bark once or twice a day, according to the state of the weather. The natural high brown colour of the inner rind must be preserved with all possible care, that is to say, the astringent virtues of the bark must neither be dissipated by too much wet nor by inordinate heat ; it is by the colour of the internal surface, and the astringent effect of its rind upon the palate, that the goodness of the bark is determined.

## DEDUCTIONS FOR BARK.

Trees measuring less in circumference than	Thickness of bark not exceeding	Proportion of circumference deducted for Bark.
32 inches,	Half an inch . . . . .	One-ninth.
40 „	Half an inch to nine-sixteenths . .	One-tenth.
48 „	Nine-sixteenths to five-eighths of an inch . . . . .	One-eleventh.
56 „	Five-eighths to three-quarters . .	One-twelfth.
64 „	Three-quarters to seven-eighths. .	One-thirteenth.
80 „	Seven-eighths to one inch . . .	One-fourteenth.
100 „	One inch to inch and quarter. . .	One-fifteenth

If the bark happens to be thicker than specified above, a little more will require to be deducted than has been stated; and on the other hand, when the wood is a thin-barked species, a smaller allowance will suffice. With bark of the thickness referred to in the table, the deductions are very nearly the proper proportions to give accurate measurements of the actual wood, while, by some of the systems presently in use, the measurements are frequently very rough, and not to be depended upon either by seller or buyer.

Charring, or half-burning of wood for making charcoal, is also a very advantageous practice in some situations. The coal is adapted to various purposes, being made of different kinds of wood, with some variation in the process. The best charcoal for ironworks is burned from oak, which is generally stacked in three-foot lengths for this use; that intended for gunpowder, or for the laboratory

of the chemist, is made from alder, lime, or willow ; the small-coal is made from the spray of underwood. The process of burning is performed on some clear and level spot near the coppice, and continues five or six days, three more being necessary for cooling. The coal being drawn is immediately removed upon wagons : whilst in the burner's care, any damage by the coal taking fire, or by wet, is at their risk ; afterwards at the risk of the waggoner until delivered. The ashes left are in considerable quantity, and of great value as a manure.

It is desirable that the owners of large estates should have a correct general knowledge of the capabilities of their land for farming purposes, and that they should know something of farming practically. Unfortunately for the interest of many of our landowners, it has not been thought necessary that they should undergo any special course of training to acquire this knowledge. Consequently they are compelled to put themselves into the hands of their Agents. A good landlord, who is acquainted with the practice and theory of agriculture and who has been careful to study rural economy in all its bearings, knows not only his obligations to his tenantry, but is also aware of the exact nature of the obligations of his tenantry to him, and the means necessary to secure their being regularly discharged. He would also hold a portion of his lands in hand, and cultivate it on the most approved system for the instruction of his tenantry. Here



it is that the example of a thoroughly-qualified Steward would have the happiest effect on those within the sphere of his influence. Moreover, if the home farm were contiguous to the mansion, which it always should be, the proprietor would have daily before his eyes an epitome of the husbandry of his country. Thus, a gentleman of landed property would possess a regular agricultural institution upon his own estate, on which the improvements would confer a great additional value. He would have a school of the most important knowledge at once for the instruction of his family and for the benefit of his tenants. The latter should be invited by the Steward to view the system of culture pursued, and it is a well-known trait in the character of many indolent and backward farmers that, by such mode, they will be tempted to slide into any easy and obvious course of improvement. There cannot, we think, be a more laudable motive to any landed proprietor for cultivating part of his estate than that of exhibiting to his tenants such models of management, in the raising of crops and rearing of stock, as they may follow without risk or excessive outlay. As farmers in general have, however, no more capital than is sufficient to keep their established system going, speculative deviations from it would be extremely imprudent. Unless, therefore, the results of the landlord's experiments show that the changes are advantageous, and within the pecuniary reach of

the practical farmer, he will be soon disgusted with the loss of his money and the ridicule attached to a profuse and unprofitable expenditure.

The late Prince Consort loved the art of agriculture, and it would be well that his example were more universally followed. He brought much practical skill to it, and great indeed were the felicitous results which followed upon his enterprises. Truly, the Prince did much towards that improvement which has been so marked within the last twenty years. Happily, too, men are generally much influenced by what their superiors in station do; and the foremost man of England having been one of the first persons in this country to appreciate the merits of deep drainage, to employ steam power in cultivation, and to apply the resources of chemistry to practical agriculture, insured the welcome consequence that there would be many followers where he was anxious and ready to lead the way. That with a large breadth of the lands of Great Britain partially tilled, or scarcely cultivated at all, the British nation should not unfrequently have to expend twenty or thirty millions of money in foreign corn, is a reproach against our practical sagacity, in which the Prince at least can have no share.

The Agent should pay great attention to the fencing over the whole estate under his charge. On some estates the live hedges are kept in order at the joint expense of the landlord and tenant, the

work being performed by a staff of hedgers kept for the purpose. But whether live or dead fences are employed, it is the proprietor who should provide them, the tenant being bound to keep them in repair. Doubtless, the landlord derives the greatest—because the most enduring—advantage from the erection of permanent fences; but the tenant has also a considerable interest, and should contribute a share of the expense towards maintaining them in proper order. Proprietors should never grumble if the hedge management on their estates do not exceed 1s. 3d. an acre per annum, for good live hedges add at least 5s. per acre to the yearly value of agricultural land; being about 400 per cent. as a return. Nor is it unprofitable to the tenant-farmer to have his hedges well kept on such terms. Deducting the landlord's share for plantation fences, the annual cost to the tenant may be taken at something less than 9d. an acre for arable land, whilst his crops are sheltered and there is no risk of cattle getting into his corn fields. There can be no doubt that every farmer is benefited at least 2s. 6d. an acre annually by his farm being provided with good, well-kept hedges. The whole yearly improvement on arable land, therefore, may be estimated at 7s. 6d. an acre, an amount which any experienced land valuer will pronounce to be by no means excessive. The fences of the park ought also to have especial attention.

The Hon. Samuel Laing, M.P., describes a fence

in general use in Norway and Sweden, which might be adopted with advantage in many situations in England and Scotland, where small wood or thinnings of plantations can be obtained. "Its advantages to the agriculturist," says our accomplished and observant traveller, "are, that it occupies as little ground as hurdles or sheep-flakes; may be put up or removed as quickly; is as good a security against cattle as the best hedge or stone wall; and is constructed of such wood as can be put to no other use. Two hedge-stakes, about six or eight feet long, are stuck into the ground opposite to each other, about four inches apart; and at every three or four feet, according to the lengths of the wood to be laid like rails between these upright sticks, a couple of them are stuck into the earth. The couple are tied together in three or more places, according to the height to be given to the fence; each tie is about a foot and a half above the other. The ties are made with the small branches of any kind of tree with the sap in them. These branches are roasted on a fire kindled on the spot, and in that state are as easily twisted and tied as a piece of rope yarn, and, being charred, are much more durable. The transverse pieces of the fence, or what corresponds to the rails in a common wooden fence, consist of slab boards; that is, the outside boards sawn from round wood, or poles, or old branches of any kind. They are run in, one piece above another, between the two upright sticks, and with one end

resting upon the tie or upon the piece under it, which is supported by the tie, and the other end resting on the ground. The pieces are laid with such a slant that the weight rests principally upon the ground, the ties only supporting the heads of these cross pieces in the air. The space between the ties is filled quite full with the boards or sticks thus resting with one end upon the ground. The whole length of the fence being in contact with the ground at so many points, and the uprights connected together also at so many, this fence is of great strength and stability, although composed of pieces of wood singly of no strength; and, besides its formidable appearance to cattle, it can support great weight. Snow, although of great weight, seldom breaks it down; and, when broken, it can be put up again immediately. In many parts of England, posts and rails cost five or six shillings a fathom, and a great deal of time and trouble is wasted besides in sinking the posts, replacing the horizontal rails in the mortices; and, after all, they make an imperfect fence, as cattle and horses get over, and sheep under it. Hedges take up much land, cannot be shifted from place to place, and are a perpetual annoyance from gaps and breaks. For a wooded country this is certainly the cheapest fence. It can scarcely cost two-pence a fathom. Three men will put up forty fathoms in a day."

The Agent should see that trees in a state of decay be removed, and the most valuable and orna-



mental species planted in their stead ; and that the grasses be preserved in the best possible state, both as to species and condition. He should also see that the ponds or waters be kept clear, well banked, and well stocked ; for it should never be forgotten that water performs an active part in the processes of fermentation, putrefaction, and decay, through which organized bodies pass in their gradual relapse to the inorganic condition. These changes deserve particular attention, for they go on in ordinary rivers, and at a certain degree of activity they turn water into a deadly poison. Indeed, some years ago, the putrescent residuum of a starch factory at Nottingham having been allowed to contaminate a brook containing fish and frogs, and resorted to by cattle for drink, the fish and frogs disappeared from the water, and the cattle exhibited a series of symptoms of disease. Their muscles, their blood, and all the more putrefiable tissues of their bodies wasted ; their coats became rough and staring ; their yield of milk fell off rapidly, a bloody purging ensued, and they died in a state of extreme emaciation. After four-and-twenty cows and nine calves had thus miserably perished, the contamination of the water was stopped by an action at law, upon which the fish and the frogs began to reappear, and the mortality of the cattle ceased. Thus, then, the manager of an estate will see how very important it is to take every care that streams resorted to by cattle should be kept as pure as possible.

Plantations, belts, clumps—defensive and useful

as well as ornamental—demand the special attention of the Land Agent. Quick hedges ought always to be close and compact, and should be encouraged on all exposed lands, for the reasons we have given, and because they form excellent shelter for live stock. It must not be forgotten, however, that, if allowed to spread or grow wild, they are very injurious. Usually, where arable land is well sheltered, no fences are required except for external boundaries, public roads, lanes, or homesteads. The following table will be found useful as showing the number of thorns or quicksets requisite to enclose any quantity of land:—

Yards long.	1 inch.	2 inch.	3 inch.	4 inch.	5 inch.	6 inch.	7 inch.	8 inch.	9 inch.	10 inch.
1	37	19	13	10	8	7	6	5	4	4
2	74	37	24	19	15	13	11	10	8	8
3	111	56	37	28	22	19	16	14	13	12
4	148	74	49	37	30	25	21	19	17	15
5	185	93	62	47	37	31	27	24	21	19
6	222	111	74	56	45	37	32	29	25	23
7	259	130	87	65	52	44	37	32	29	26
8	296	148	99	74	60	50	44	37	33	30
9	333	167	111	84	67	56	48	42	37	34
10	370	185	124	93	74	62	53	47	42	37
20	740	370	247	185	148	124	106	93	83	74
30	1,110	555	370	278	222	185	159	139	124	111
40	1,480	740	493	370	296	247	212	185	165	148
50	1,850	925	617	463	370	309	265	232	206	185
60	2,220	1,110	740	555	445	370	318	278	247	222
70	2,590	1,295	864	648	518	432	370	324	288	259
80	2,960	1,480	987	740	592	494	423	370	329	296
90	3,330	1,665	1,110	833	666	555	476	417	370	333
100	3,700	1,850	1,234	925	740	617	529	463	412	370
200	7,400	3,700	2,467	1,850	1,480	1,234	1,057	926	823	740
300	11,100	5,550	3,700	2,775	2,220	1,850	1,586	1,388	1,234	1,110
400	14,800	7,400	4,933	3,700	2,960	2,467	2,115	1,850	1,645	1,480
500	18,500	9,250	6,167	4,625	3,700	3,085	2,643	2,313	2,057	1,850
600	22,200	11,100	7,400	5,550	4,440	3,700	3,172	2,775	2,467	2,220
700	25,900	12,950	8,633	6,475	5,180	4,317	3,700	3,238	2,878	2,590
800	29,600	14,800	9,867	7,400	5,920	4,934	4,229	3,700	3,289	2,960
900	33,300	16,650	11,100	8,325	6,660	5,550	4,757	4,163	3,700	3,330
1,000	37,000	18,500	12,334	9,250	7,400	6,167	5,286	4,625	4,111	3,700
2,000	74,000	37,000	24,667	18,500	14,800	12,334	10,572	9,250	8,223	7,400
3,000	111,000	55,500	37,000	27,750	22,200	18,500	15,857	13,875	12,334	11,100
4,000	148,000	74,000	49,333	37,000	29,600	24,667	21,143	18,500	16,445	14,800
5,000	185,000	92,500	61,670	46,250	37,000	30,834	26,427	23,125	20,556	18,500
6,000	222,000	111,000	74,000	55,500	44,400	37,000	31,714	27,750	24,666	22,200
7,000	259,000	129,500	86,333	64,750	51,800	43,167	37,000	32,375	28,778	25,900
8,000	296,000	148,000	98,667	74,000	59,200	49,334	42,286	37,000	32,888	29,600
9,000	333,000	166,500	111,000	83,250	66,600	55,500	47,572	41,625	37,000	33,300
10,000	370,000	185,000	123,333	92,500	74,000	61,667	52,857	46,250	41,111	37,000

In order to secure sufficient hedge growth, attentive pruning as well as weeding is necessary. The plants ought not only to be thick at bottom, but the leading shoots properly trained, that they may run up to sufficient size and height. Every gap in the new hedge ought to be filled up with living plants at the earliest possible moment. In fact, on every estate of importance, there ought to be a nursery of quicks, not only to save the expense of buying them, but to insure a supply of healthy plants of sufficient age for hedges, belts, or other plantations. The earth in the nursery ought to be kept loose with the spade, and in good condition by manuring; for, though it is natural that trees raised in a mild and sheltered climate will not thrive if transplanted to a cold or exposed situation, it is not a necessary consequence that those which are designed for poor shallow land ought to be starved in a similar soil when seedlings. This, indeed, would be contrary to the course of nature in analogous cases; for no living thing, whether animal or vegetable, that is very poorly nursed, attains to the vigour which it would otherwise possess, or preserves the power of resisting subsequent privations of its proper food. The more roots that quicks push out, the more food they imbibe through the fibres—the more capacity they have for taking nourishment, the faster and larger will they grow. It would be a great mistake, therefore, not to raise them in rich soil. The end of January is a good season, if

open weather, for commencing to put out young trees, either for belts in exposed situations, woods, or hedge-row timber; and if for shelter in belts, these ought not to be less than fifty yards in breadth. In making large plantations—unless for the mere purpose of ornament about a gentleman's demesne—no sensible man will sacrifice very good arable land to them; but, on light hungry soil, we cannot too strongly press the propriety of planting larch, intermingled with a few oaks and ashes. In forming hedges, it is not unusual to plant with the thorns ash and elm quicks, within distances of three or four feet; but this is a great deal too close. The ash is such an absorber of food, its exhausting powers are so plainly to be seen on the ground immediately around it, that it should be planted in hedges very thinly indeed, and the plants pruned so closely as to present the appearance of bare poles, except at the head; by this means useful wood is obtained in a few years for farming implements, and the ill effects of too much shade are avoided. For purposes of profit, the ash had better be planted in distinct plantations. In eight years there will be some return for hop poles and coopers' purposes, and the stools renew themselves again and again.

Regarding the park-stock, the Agent should be especially vigilant. He should always have an eye over the keepers to see that a proper account of the increase of the deer is kept, also of their disposal, and of the expenditure in connection with them.

The most important part of the management of deer consists in securing for them abundance of good food, and a dry layer in winter. During the rains of that inclement season they should be foddered in the dryest and most sheltered part of the park, for, in wet situations, like the sheep, they are subject to the rot. It may, perhaps, excite a smile, when we state that *stall-feeding* of deer may be rendered very profitable. They can thus be made very fat, and ready for market in May, the dearest time. The number of female fawns preserved must be rather larger in proportion to the number of does intended for slaughter in the ensuing season, as a provision against casualties. A sufficient number of male yearling deer must be annually cut, in order to keep up a regular stock of haviors, which are in season at five years old, towards the latter end of September, the rutting time, when bucks are out of season.

It is somewhat remarkable that whilst there are upwards of 300 deer-parks in England, only about 30 contain red deer. Mr. Shirley tells us that Erridge Park, in Sussex, belonging to Lord Abergavenny, is the oldest, and Tatton Park, in Cheshire, belonging to Lord Egerton of Tatton, is, with the exception of Windsor, the largest. They are of all ages, from the earliest Norman times down to yesterday, and of all sizes, from 3,000 acres to a few roods. The introduction into England of parks or enclosed preserves as distinct from open forests is



assigned to the Normans by some writers, who contend that no such enclosures existed in Saxon times. Mr. Shirley thinks differently; finding evidence in the will of one Thurstan, who died 1045, that deer parks were then in existence. But, carrying his researches into a much more remote period, he finds traces of parks among the ancient Gauls, whence he thinks the Normans may have taken the idea, and quotes Columella as his authority. This is curious and interesting; but, after all, if we once pass beyond the limits of our own island we may as well go back to the ancient Persians at once, beyond whom there may, for all we know, lie an origin remoter still. At all events, Xenophon's division of their hunting grounds into *perieirgasamanoi paradeisoi* and *ana-peptamanoi topoï* exactly corresponds to the modern distinction between park and forest. Waiving this point, however, and coming down to comparatively recent annals, we find, as might have been expected, that deer parks have been steadily on the decline. In 1575 there were upwards of seven hundred in England, besides twenty-one in Wales. Harrison, the first editor of "Holinshed's Chronicles," published some fifty years earlier, declares that "the twentieth parte of this realme is employed on deere and conies already." But towards the end of the sixteenth century and beginning of the seventeenth indications became frequent that deer parks were being generally thinned. Nor is it difficult to account for this. When the class of country gentle-

men arose upon the ruins of the old feudal system, just as our modern kingdoms were formed out of the fragments of the Roman empire, their smaller estates were no longer able to spare so large a portion for non-productive uses; while during the long peace which followed the wars of the Roses it was only natural that agriculture and pasturage should reassert their claims, to the gradual degradation of woodcraft. As beef and mutton improved, venison became less precious; and as tillage extended, the area of the chase was narrowed. But the great destruction of deer parks, from which they never entirely recovered, took place during the Civil War; when, partly from a grudge at the county gentry, partly, perhaps, from an idea that the stag was a feudal and monarchical beast, partly from a spiritual contempt for field sports, the most wholesale devastation of these beautiful demesnes was encouraged—an act of wickedness, in Mr. Shirley's judgment, which was righteously punished after the Restoration by a levy of deer upon the parks of the Roundheads to replenish the Royal preserves. In Yorkshire, in Suffolk, in Berkshire, in Hampshire, and Nottinghamshire, the havoc was great; and though a few gentlemen were indemnified, yet the deer in general fared like other sufferers in the Royal cause, and were never fully reinstated.

Persons fond of hunting have invented peculiar terms by which the objects of their pursuit are characterized: thus the stag is called, the first year, a

*calf*, or *hind-calf*; the second, a *knobber*; the third, a *brock*; the fourth, a *staggard*; the fifth, a *stag*; and the sixth, a *hart*. The female is, the first year, called a *calf*; the second, a *hearse*; and the third, a *hind*. In Britain, the stag has become scarcer than it formerly was; but, in the Highlands of Scotland, herds of four or five hundred may still be seen, ranging over the vast mountains of the north; and some of the stags of a great size. In former times, the great feudal chieftains used to hunt with all the pomp of eastern sovereigns, assembling some thousands of their clans, who drove the deer into the toils, or to such stations as were occupied by their chiefs. As this sport, however, was occasionally used as a means for collecting their vassals together for the purpose of concocting rebellion, an act was passed prohibitory of such assemblages. In the "Waverley" of Sir Walter Scott, a deer-hunting scene of this kind is admirably described.

The long-talked-of introduction of the flesh of the eland antelope into the English food market has become a *fait accompli*. Lord Hill, who has devoted so much trouble and money to the breeding of this animal in his park at Hawkstone, has fatted a really fine male, and exhibited him as extra stock at the last Christmas show of the Smithfield Club at the Agricultural Hall. At the close of the show the beast was not sold, and did not excite the competition amongst the "purveyors" of meat of the metropolis that was expected. The Zoological

Society sell their surplus stock of elands at £150 per pair. The price for the table was, we believe, somewhat higher.

In a corner of the annex occupied by the porcine tribe in the Smithfield Show was exhibited this specimen of the eland, of which so much is said in the writings of Livingstone and other African travellers. It belongs to the antelope species, of which Livingstone pronounces him the most magnificent. In some of its characteristics the eland approximates to the ox. It is a graceful and beautiful animal, quite as large as an ordinary sized horse, and apparently about five feet high at the shoulders. The horns are straight, inclining backward and outward. They are spiral and pointed, and of great strength. The tail very much resembles that of an ox, and terminates in a tuft of black hair. In its native state it is gregarious, but being generally very fat it is not difficult of pursuit. Its flesh is very much esteemed, particularly the muscles and thighs, which are dried like tongue. Inasmuch as the eland at one time frequented the temperate zone as low down as the Cape Colony, from which, however, he has been driven by the settlers, it is thought that he may be easily acclimatised and domesticated in England, and it is with this laudable object that Lord Hill has devoted his attention to the propagation of the species on his estate; with what measure of success it is as yet hard to say, and the specimen shown at the Agricultural Hall is stated as being 1,764lbs. live weight. He is a beast

of enormous strength, capable of lifting nearly a ton weight of hay with his horns, and is said to be as fierce as he is strong. He is a source of great attraction. Had it been the hippopotamus, or the more recent zoological importation, the walrus, it could scarcely have caused greater interest. This ruminant quadruped has been slaughtered and eaten. A sirloin of the animal was placed on the table at the Farmers' Club Dinner at the Salisbury Hotel, and those who partook of it, and were not in the secret of its being eland, pronounced it to be "capital beef." The flesh is fine in the grain, dark in colour, and carries a fair layer of fat, but is not of such fine flavour as venison. The animal was slaughtered by Messrs. Bannister, who bought him at a low price, there being really no competition for the strange meat.

Agents should be especially careful in determining on butts for Rifle Volunteer Corps, as the following epitomised statement will show. In May last, three cows, the property of Mr. Mullins, of Rugby, died, after exhibiting symptoms which could not be referred by Mr. Watson, the veterinary surgeon consulted, to any disease with which he was acquainted. On making a *post-mortem* examination of the cows, fragments of lead were found in their alimentary canals, especially in the reticuli or paunches. It was then remembered that, although they had from November, 1863, up to the period of their death in May last, been pastured at a distance from the butts of the Rugby Rifle Volunteer Corps,



the whole of the cows affected had, prior to November, 1863, been kept in a field immediately adjoining those butts. This field was carefully examined by Mr. Watson, and among the herbage he discovered fragments of lead which corresponded in every way to those found in the stomachs of the cows. Now the lead here referred to is that which had been scattered from the targets consequent upon the impact of bullets, and is called "bullet spray." Some of this spray had been evidently picked up by the cows while feeding, it remained in their stomachs several months, where, during that time, it slowly, but continuously, underwent solution and subsequent absorption into the system, and so, doubtless, poisoned the animals in question. Since the death of the three cows, the owner has lost two more under precisely the same circumstances as those already related. The viscera of one of the cows which died last were sent to Professor Tuson for analysis, and he was enabled to demonstrate the presence of lead, not only in the coats of the stomach and intestines, and in their contents, but likewise in the liver and kidneys, thus proving the passage of that poisonous metal into the circulation. He also had an opportunity of examining the bullet-spray, which enabled him to ascertain that most of it was encrusted with a pale drab-coloured substance, composed chiefly of carbonate of lead, a highly poisonous plumbic compound. It was this carbonate of lead which he believed more immediately caused the death of the cows.

Some of our noblemen and gentlemen farmers are thorough judges of buying and selling cattle; but, when that is not the case, unless they have a faithful and capable Steward, the consequence is plain enough. Of this there have been many laughable examples. There is one district, where, by custom, the dealer is sent for to fix the prices of the stock he does his gentleman-chapman the honour to purchase; and, being once unluckily present at a sale of this kind, we plunged ourselves, by our own officiousness, into a strange dilemma, and got the ill-will of both parties for our pains, by at once marring a good bargain for the dealer, and destroying the false security on which our friend had reposed for many years.

The prices paid for cattle—bulls, cows, and heifers of the shorthorned breed, at two sales in May last, struck us as something marvellous. One cow of the Preston Hall herd, sold for the unprecedented sum of eight hundred and fifty guineas! Thirteen Grand Duchesses averaged four hundred and thirty-five pounds each; ten Roses, two hundred and fourteen, and ten bulls one hundred and sixty-seven guineas each; the whole lot of sixty-two animals having realized the enormous sum of £11,189 17s., or 180 guineas per head. At another sale, the day after, one cow was sold for £600, and two young bulls, her produce, a yearling and calf, fetched 500 guineas each. Verily, John Bull has good cause to feel proud of his stock, when his bull-calf of a few weeks old sells for 500 guineas!

From these prices it would appear that highly-bred shorthorns are running nearly a dead heat with thorough-bred horses, as to value, and we have little doubt in a general way, pay better. A winner of the Derby or St. Leger is a fortunate man, but, perhaps, once only during his whole racing career; and although yearlings sometimes sell for double the price of a bull-calf, yet a judicious breeder of shorthorns can often produce a more profitable account than the owner of racing stock.

Considering how much sheep vary in quality, the following particulars regarding the principal breeds in Great Britain may be of service to the Estate Agent, and the table, showing the feeding value of articles of food, may be found useful:—

Names of Breeds.	Head.	Colour of Face and Legs.	Wool.	Weight of Fleece.	Wethers per Quarter.	Age when Killed.
					£ s.	Years
Teeswater	No horns	White face and legs	Long wool	9	1 8	2
Lincoln	"	"	"	10	1 5	2
Dishley	"	"	"	8	1 2	2
Cotswold	"	"	"	9	1 4	2
Romney	"	"	"	8	1 2	2
Dartmoor	"	"	"	9	1 5	2
xmoor	Horned	"	"	6	0 16	2½
Blackfaced	"	Black face and legs	"	3	0 15	3½
Hereford	No horns	White face and legs	Short wool	2½	0 14	3½
Morf	Horned	Black and speckled	"	1¾	0 12	3½
Dorset	"	White and speckled	"	3½	0 18	2
Wilts	"	"	"	3	1 0	3
Berks	No horns	Black and white	Long wool	7	0 18	2½
Southdown	"	Speckled and white	Short wool	2½	0 18	2
Norfolk	Horned	Black and white	"	2	0 18	3½
Herdwick	"	Speckled and white	"	2	0 10	4½
Cheviot	No horns	White face and legs	"	3	0 16	4½
Dunfaced	"	Dun face and legs	"	1½	0 7	4¼
Shetland	"	Various coloured	Fine cottony	1¾	0 8	4½
Spanish	Rams hor'd	White	Short wool	3½	0 14	2½
Do. cross	...	...	...	2½	0 16	2

The following are the live weights of the long-woolled breeds of sheep:—At two years old Leicesters weigh 120 to 150 lb.; Lincolns, at a year old, 80 to 100 lb.; Cotswolds, at two years, the same as the Leicesters; Romney Marsh, 120 to 140 lb.; Exmoor, 60 to 70 lb., at four or five years of age; Herdwicks, at the same age, weigh 40 to 50 lb.; Bampton, at two years, 120 to 150 lb.; Devonshire South Hams, at the same age, 100 to 120 lb.

At Mr. Brydon's biennial sale of rams at Beatock, 173 rams realized £1310 7s. One four-year-old, "Craig Patrick," a splendidly made sheep, realized the fabulous sum of one hundred and eighty-five guineas. The first bid which was offered for him was only £10, but he quickly rose to a hundred guineas, and was finally knocked down to Mr. Miller, Downreay, for 185 guineas, the highest price ever paid for a ram in Scotland. The next highest figure (seventy-two guineas) was paid by Mr. Johnston, Archbank, for "Young Lammie," a three-year-old. In 1865 a tup, "General Lee," fetched at Mr. Brydon's sale 155 sovereigns.

Whilst at a recent Muir of Ord Market an Edin-killie farmer bought 100 blackfaced lambs for 100s., and all are reported to be thriving well.

We do not, with any degree of certainty, know the origin of the domesticated sheep. It formed the principal riches of the patriarchs, in the days of

old, and, no doubt, multiplied until its species were spread over the greater part of Western Asia ; but at what period it was introduced to Britain is not known. It is now found in almost every part of the globe, although, as a domestic animal, it depends almost entirely upon man for its support. Its value, however, amply repays him for whatever care and kindness he may bestow upon it ; for, like the ox, there is scarcely a part of it that he cannot convert to some useful purpose. The fleece, which serves it for a covering, is appropriated by man, to serve the same end to himself, whilst its skin is also applied to various purposes in civilized life. Its entrails are used as strings for musical instruments, and its bones are calcined, and employed as tests in the trade of the refiner. Its milk, being thicker than that of the cow, yields a greater quantity of butter and cheese, and its flesh is among the most wholesome and nutritive that can be eaten. Thomson has beautifully described the appearance of the sheep when bound to undergo the operation of being shorn of its wool :—

“ Behold, where bound, and of its robe bereft  
By needy man, that all-depending lord,  
How meek, how patient, the mild creature lies !  
What softness in his melancholy face,  
What dumb complaining innocence appears !”

The shepherd's crook is older than either the husbandman's plough or the warrior's sword. We are



told that Abel was a keeper of sheep. Many passages in holy writ enable us to appreciate the pastoral riches of the first eastern nations ; and we can form an idea of the number of their flocks, when we read that Jacob gave the children of Hamor a hundred sheep for the price of a field, and that the King of Israel received a hundred thousand every year from the King of Moab, his tributary, and a like number of rams covered with their fleece. The tendency which most sheep have to ramble, renders it necessary for them to be attended by a shepherd. To keep a flock within bounds is no easy task ; but the watchful shepherd manages to accomplish it without harassing the sheep. In the Highlands of Scotland, where the herbage is scanty, the sheep-farm requires to be very large, and to be watched over by many shepherds. The farms of some of the great Scottish landowners are of enormous extent. “ How many sheep have you on your estate ? ” asked Prince Esterhazy of the Duke of Argyll. “ I have not the most remote idea,” replied the Duke ; “ but I know the shepherds number several thousands ! ”

There appear to be four distinct kinds of wild sheep now known to naturalists, viz., the *Argali*, found in the elevated ranges of northern and central Asia ; the *Musmon*, belonging to the country which borders upon the Mediterranean ; the *Bearded Sheep* of Barbary and Egypt ; and the *Rocky Mountain Sheep* of the American continent. Many persons incline to the opinion that the *Argali* is the

original stock, and that the variety found in North America came from Asia by crossing the ice at Behring's Straits. At first, it may seem strange that the domesticated animal could have sprung from any of these wild varieties, on account of the great dissimilarity in their appearance and habits; but, on examination, it will be found that the difference is not more striking than that between the several distinct breeds now in our possession. The subject is full of obscurity. It is, indeed, strange that, while history teems with the accounts of battles, massacres, invasions, the reigns and the crimes of kings, it throws no light upon our domestic animals. The subject was too mean for history—the actors too humble to be noticed; but thus it ever is that the glare of crimes and mighty deeds effaces the record of the useful, the beneficent, and the truly great.

The keeping of flocks seems to have been the first employment of mankind; and the most ancient sort of poetry was probably pastoral. The poem known as the pastoral gives a picture of the life of the simple shepherds of the golden age, who are supposed to have beguiled their time in singing. In all pastorals, repeated allusions are made to the "fleecy flocks," the "milk-white lambs," and "the tender ewes;" indeed, the sheep occupy a position in these poems inferior only to that of the shepherds who tend them. The "nibbling sheep" has ever been a favourite of the poets, and has supplied them with

figures and similes without end. Shakspeare frequently compares men to sheep. When Glo'ster rudely drives the lieutenant from the side of Henry VI., the poor king thus touchingly speaks of his helplessness:—

“ So flies the reckless shepherd from the wolf:  
 So first the harmless sheep doth yield his fleece,  
 And next his throat, unto the butcher's knife.”

In the “Two Gentlemen of Verona” we meet with the following humorous comparison:—

“ *Proteus*. The sheep for fodder follow the shepherd, the shepherd for food follows not the sheep: thou for wages followest thy master, thy master for wages follows not thee; therefore, thou art a sheep.

“ *Speed*. Such another proof will make me cry *baa*.”

The descriptive poets give us some charming pictures of sheep. Every one is familiar with the sheep-shearing scene in Thomson's “Seasons:”—

“ Heavy and dripping, to the breezy brow  
 Slow move the harmless race; where, as they spread  
 Their swelling treasures to the sunny ray,  
 Inly disturb'd, and wond'ring what this wild  
 Outrageous tumult means, their loud complaints  
 The country fill; and, toss'd from rock to rock,  
 Incessant bleatings run around the hills.”

What an exquisite idea of stillness is conveyed in the oft-quoted line from Gray's “Elegy:”—

“ And drowsy tinklings lull the distant fold.”

From Dyer's quaint poem of "The Fleece" we could cull a hundred passages relating to sheep; but we have already exceeded our space. We cannot, however, close this brief notice of the allusions that have been made to sheep by our poets, without quoting a couple of verses from Robert Burns' "Elegy on Poor Mailie," his only "*pet youe*:"—

"Thro' a' the town she troll'd by him;  
 A lang half-mile she could descry him;  
 Wi' kindly bleat, when she did spy him,  
     She ran wi' speed;  
 A friend mair faithfu' ne'er cam' nigh him  
     Than Mailie dead.

"I wat she was a sheep o' sense,  
 An' could behave hersel' wi' mense;  
 I'll say't, she never brak a fence,  
     Thro' thievish greed.  
 Our bardie, lanely, keeps the spence,  
     Sin' Mailie's dead."

The sheep is always a hardy animal as far as temperature is concerned, being well provided by nature with a coat of wool or hair to protect it from cold, moisture, or excessive heat. It is harmless and timid and dependent on man for protection and food when domesticated. In its natural state the sheep has horns, but as it is improved in breed these disappear, and the choicest animals are without horns. The sheep is a ruminating animal, and has a stomach of a similar complicated character to that of an ox. Its mouth and teeth are so formed

as to enable it to bite the shortest grass. A sheep will live well where a cow would starve. The male is called a ram, and the female a ewe; a number of other names being used to distinguish age, sex, and a variety of conditions. The female goes with young twenty-one weeks, and generally brings forth in the early spring. She produces one or two at a birth, but rarely more. A great many peculiar names are adopted in different localities for the purpose of distinguishing the age, sex, number of lambs, shearings, &c.

Age and Description.	Male.	Female.
From its birth until weaned.	A ram lamb—or tup—pur lamb—or a heeder.	A ewe lamb or gimmer lamb.
After weaning till shorn.	A hog—a hoggett—a haggerill—a teg—a lamb hog, or tup hog—if castrated, a wether hog.	A gimmer hog—a ewe hog—a sheeder ewe.
Castrated.	A shearing wether—a dinmont or wether hog.	
After shearing.	A shearing or shearling—a sheer hog—a diamond or dinmont ram or tup.	A shearing ewe or gimmer; a sheave double-toothed ewe.
After second and third shearing.	A two shear ram—ram tup or wether—and after three shearings, a three shear, &c.	A two shear—a three shear, or four or six tooth ewe.

The above are the principal terms in ordinary use in England. In Scotland, wild ewes are those which have weaned their lambs or are not in lamb.

The weights of the fleece of sheep are as follows : Leicester, 7 lbs.; Lincolnshire, lowland, 10 lbs., upland, 8 lbs.; Cotswolds, 7 to 8 lbs.; Romney Marsh, 8 lbs.; Exmoor, 4 to 5 lbs.; Herdwicks,



3 to 4 lbs.; Bampton, 7 lbs.; Devonshire South Hams, 9 lbs.; Blackfaced, 3 lbs.

An American has invented a sheep-shearing machine, with two men to hold the shears and one to turn the wheel. The machine clips sheep with an almost unimaginable rapidity, as there is no expenditure of muscular labour beside turning the wheel, which is not harder than a small spinning wheel, and the whole machinery does not occupy more room than such a wheel. A new principle in mechanics has been developed in this invention, which is the secret of its success. This is a flexible shaft, through which the power is communicated from the driving-wheel to the shears, which are kept rapidly clipping as long as the driving-wheel turns, no matter in what position they are held, nor how much the driving-shaft is contorted, even to bending it around the body of a sheep. This driving-shaft, about 3 feet long, is a spiral brass wire; one end of the coil being connected with a small wheel attached to the butt of the blades of the shears, and the other to a pulley driven by a band on the end of an arm, which is partially flexible, attached to the small frame that holds the driving-wheel. On the opposite side is another arm and shaft and shears for another shearer, each working independent of the other. The shears are made with guards, so that all that is necessary is to hold them level and steady on the skin, pushing them forward as fast as possible.

The half-yearly gathering of the shepherds whose flocks browse on the extensive range of hills going through Derbyshire, Yorkshire, and Cheshire, has recently been held. The shepherds brought with them nearly 100 sheep, which during the past six months had ranged from one flock to another, and which were identified by those present. After a substantial dinner, the interesting custom of singling out the truants began. Some eighty or ninety dogs were also in attendance, and as the sheep were let out a curious scene presented itself to the visitor. The dogs jumped among the sheep, barking at them, and every now and then singling out their old acquaintance with remarkable sagacity. The shepherd, thus aided by his dog, managed to identify his own, and in the course of an hour the whole had been restored. The dogs then took charge of the truants, and, in advance of their masters, drove them towards their respective stations; in some instances a distance of twenty miles. It is said that these gatherings have existed more than 100 years, and that very few sheep are by this method not restored to their owners.

The gentle and timid disposition of the sheep, and its defenceless condition, must very early have attached it to man for motives less selfish than either its fleece or its flesh; for it has been proved beyond a doubt that, obtuse as we generally regard it, it is susceptible of a high degree of domesticity, obedience, and affection. In many parts of Europe,

where the flocks are guided by the shepherd's voice alone, it is no unusual thing for a sheep to quit the herd when called by its name, and follow the keeper like a dog. In the mountains of Scotland, when a flock is invaded by a savage dog, the rams have been known to form the herd into a circle, and placing themselves on the outside line keep the enemy at bay, or charging on him in a troop, have despatched him with their horns.

With regard to the custom prevalent in most localities of "chap-money," as it is called in the south, or a "luck-penny," as it is termed in the north, we can only say that it is one which has caused many misunderstandings. The easiest mode of dealing with it is for the Agent or Steward to resolutely set his face against it, allowing none under any circumstances. His Grace the Duke of Sutherland, with characteristic public spirit, has led the way in opposing this pernicious practice, and declares his determination to discharge any servant, and cease to deal with any tradesman involved in it. He says truly that "this practice is alike unfair to the master and to the servant: unfair to the master because, to enable the tradesman to pay this tax, he must add the amount to the price charged for his goods; and unfair to the servant, inasmuch as it places a temptation constantly in his way." Still, as a correspondent in the *Times* states, "His Grace may be assured that so long as noblemen and gentlemen leave almost

unchecked the management of their households and the choice of their tradesmen in the hands of their domestic servants, the evil, temporarily checked by such letters as those just written, will spring up again, the noblemen and gentlemen will be mulct to pay percentages, the unscrupulous tradesmen will thrive, and the conscientious ones will suffer."

In the management of estates for sale too much jockeyship and intrigue are sometimes resorted to. The tenants are racked and screwed up *pro forma* in their rents to a sum much greater than the farms are worth; the landlord, meanwhile, paying all the parish and other rates, and making up any deficiency by an annual present to the farmer or to his wife. But the Agent purchasing for a principal must be green indeed in his profession to be imposed upon by shallow artifices like these. The market value of an estate is easily and accurately determined by any practical man after making a thorough survey. Should the Agent in trust lack the proper knowledge and experience to determine the true value of the lands under his charge, or which he may be instructed to purchase, he should at once seek proper professional advice. It may be stated, moreover, that there is as much judgment required in making choice of an estate as there is in estimating its value. Land in a sheltered vale with a southern aspect, would be worth thrice as much as land in an exposed situation with a northern

aspect, or even more, although the soil in both cases were of the same quality. Lands which lie gently sloping to the south, with sufficient fall for drainage, are always to be preferred. The capabilities of every property are also largely influenced by its geological character, so much depending upon the under strata and the superficial deposits.

Climate, which results from the combined influence of all external physical circumstances appertaining to each locality, in their relation to organic life, is too little attended to in purchasing estates. As respects the climates of the various districts of England and Scotland, it will be found, as a general rule, that the seasons become more excessive, the winters being colder, and the summers warmer, the greater the distance from the sea; and, like the continents of Europe, Asia, and America, that the west coast is milder, more equable, and moister than the east coast. This difference, however, is slight compared with that of the corresponding coasts of the continent, being in proportion to the small size of England and Scotland as contrasted with the great extent of the former. Nevertheless, our meteorological tables prove that the average difference between the mean temperature of the hottest and coldest months in places situated on the south-coast of England, exposed to the full influence of the south-west winds, is nearly four degrees less than in London, or corresponding inland situations. The greater coolness of the summer and



mildness of winter on the coast is due to the southwest winds, which reach the shore moderated by the temperature of the great Atlantic Ocean ; but which become hotter in summer and colder in winter, in proportion as they extend inland. Moreover, this rule is no doubt interfered with by numerous local causes of disturbance, as the geological character of the soil, the nature of its surface, whether bare, cultivated, or abounding in woods and forests.

The seasons, in short, have been so extraordinary for the last few years, that the subject of *climate* is brought forward with a prominence that places it in its true rank amongst the most important questions relating to agriculture. With the summer of 1866 came a drought, such as has not been experienced for many years ; day after day passed, and week after week, but yet the rain fell not. The crops were, therefore, brought to too early maturity. The absence of rain has, moreover, been felt to act injuriously on all vegetation. We learn from ancient as well as modern history that seasons of drought and of humidity, more or less intense and destructive in their effects, have succeeded each other at irregular intervals through all recorded time. Without doubt, that Omniscient Being who founded the universe, and who, in His care for His creatures, said to the waters of the great deep, “Hitherto shalt thou come, but no further, and here shall thy proud waves be stayed,” and who has ordered the ebbing and flowing of the tides at stated times, has

also arranged, with perfect wisdom, the varying states of the aqueous vapour which, blended with the atmosphere, flows over our heads, and ordained the vicissitudes of the seasons—even those which appear most perplexing to us—as systematically and certainly, as the periods of the planetary orbs.

All the works of creation, from the greatest to the least, are perfect in order and in system. All their movements and variations are governed by immutable laws; and if they appear uncertain to us, it is because we have not yet ascertained the nature of those laws. Time was, when solar and lunar eclipses were regarded as unaccountable preternatural manifestations, but the advancing science of astronomy has long since dispelled those absurd ideas. The degree of temperature that shall exist, and the amount of rain that shall fall in any month in a given locality fifty years hence, are as certain *in the nature of things*, as are the eclipses of the sun and moon which shall occur in that year. And if our knowledge of meteorology were as perfect as our knowledge of astronomy, we should be equally able to predict with certainty the one as the other.

If there be one subject more than another, which in this age of progress offers a wide field for improvement, and which now invites the energies of scientific minds to its elucidation, surely it is that of the seasons and the weather, seeing that, through ignorance of the laws which govern the latter, we,

in our vast intercourse and traffic by sea with other countries, lose many valuable lives, and an immense amount of property by shipwreck caused by storms, which, but for that ignorance, might have been foreseen and guarded against; and also that, in endeavouring to carry out an improved system of agriculture, and planning future operations to meet the wants of a rapidly-increasing population, the husbandman is still obliged to grovel on in the dark, with little new light to guide him, on a point which so materially affects those operations, and on which depend their successful application and profitable issue.

It may, perhaps, appear to some, that agriculturists would not derive much benefit from a foreknowledge of seasons of great drought, or of rain, which they can do nothing to prevent; but there are many ways in which an intelligent and thoughtful cultivator of heavy, mixed, and unkindly soils, could profit by such information. In anticipation of a cold, backward spring, he would, in the previous year, endeavour to raise more root-crops, and sow a larger breadth of winter tares to meet the wants of his cattle. With the knowledge that the summer would be dry, he would, in sowing his spring-crops, get as fine a seed-bed as possible, and roll his land early, the better to keep out the drought. He would also purchase such kinds of artificial manure as were best adapted to the season, and suit his time better for applying them. He would consider which

kind of roots, or other crops, would thrive best on his description of soil, and endeavour to sow early or late, as best suited the coming season. With the prospect of a hot, dry summer, he would arrange to break up early a poor stiff field, and expose it to the rays of the burning sun, which would prove as beneficial as a coat of manure to that field. In short, there are ways too numerous to mention, in which a farmer would benefit, and, through him, the community at large, by his having such a foreknowledge of the seasons.

There can be no question but that if a system were brought to such a degree of perfection as to accord accurately with the phenomena of Nature in years past, it would as correctly indicate what might be expected in years to come; for the laws which, in the hands of Omnipotence, direct the movements of the orbs above and the flowing of the waters beneath, the distribution of rain over the earth and the course of the winds, will continue as perfect and inflexible for ages to come as they have through those which are past; and the veil of uncertainty through which we now look at these latter phenomena will be drawn aside in proportion as we become acquainted with the beautiful laws which govern them.

Taking two estates, lying nearly in one latitude, both being in an unimproved condition, and let at the same rent, the experienced Agent may discover in a moment that, owing to the geological character

of the one, a moderate outlay will render it highly productive ; while the other, though little worse in its unreclaimed state, would become equally fertile only after a heavy expenditure. However, to decide on all the important points in choosing an estate in a proper, skilful, and systematic way, we must have recourse to science, if really correct estimates are to be formed. Doubtless, experienced men are able to tell, by the appearance of the surface soil, its productive qualities ; but that is only skin-deep. In short, to be thoroughly competent to judge of the real value of landed property, one must have undergone a course of training in theory as well as practice, not a bit less arduous than that required in connection with what are called the “learned professions.” And it is not many whose qualifications come up to this standard. It ought not to be forgotten, in purchasing an estate, that facility for obtaining chalk, lime, or any other description of manure, is of very great importance, and adds materially to the value of a property. Copious streams, too, enhance its value, particularly if they possess calcareous qualities, and can be made available for driving machinery, or for irrigation, &c. It may also be remarked that, before purchasing, great care should be taken in estimating the number of dilapidated buildings and the cost of restoring them, as otherwise what seemed a good bargain may turn out to be a very bad one. Farmers must have good homesteads, or they will be constantly working



at a disadvantage. The loss sustained through unsuitable farm buildings is greater than many persons suppose. Surely it is desirable that improvements in farm accommodation should correspond with the improved agricultural systems which are day by day becoming more general. The progress made by general agriculture requires that our homesteads be made counterparts of our other farming systems; and to whom can tenant-farmers look for these improvements but to the owners of estates?

The value of all landed property, says Mr. Grainger, must of course depend upon that of its produce; depreciate the latter, and the former becomes proportionably lessened: but if by any means of legislative measure, or through its operation, the prices of agricultural produce are so far reduced, that no one will lay out capital upon the soil as a tenant, because he cannot obtain a profit sufficient for subsistence, and at the same time pay rent to the proprietor of the land, then the value of the property becomes almost incalculably diminished; because the landlord himself receiving from it no rent, and deriving from it only a very precarious and scanty income, and that fluctuating according to the state of the markets, it is no longer a desirable object of investment, nor will any one possessed of money become a purchaser of land, unless he has no other possible mode of turning his capital to profit, or rather of rendering it in the slightest

degree productive. This state of affairs is strikingly exemplified in the actual situation of many landed proprietors in the north of Europe, as detailed in the reports of Mr. Jacob. There individuals are to be found possessed of large estates, which in Great Britain would produce princely incomes, and enable their proprietors materially to encourage and support manufactures and trade, destitute themselves almost of the means of subsistence, at least in any way commensurate with the rank they ought to hold as great landed proprietors, and altogether deprived of many of those comforts and luxuries which are even enjoyed by farmers in Great Britain; and this entirely arising from the prices of agricultural produce being ruinously low.

The same reports also show, that the like cause operates to render the incomes of those who have advanced money upon the security of these estates, so far as they depend upon that resource, equally precarious and uncertain as those of the proprietors of the soil: this, indeed, follows as a matter of course; and were the landholders here placed in a similar situation, all those who had lent their money upon mortgage or upon annuities secured upon the land, would feel precisely the same effect, whilst their situation would in general only be rendered worse by taking possession of the land, and changing places with its proprietors. Thus no class would escape being more or less, and in many instances

greatly and deeply, affected by the depreciation in the value of agricultural produce.

There is no doubt that agriculture has been the broad basis of the prosperity of the empire ; and that in proportion as that has flourished all the interests of the country have been benefited, whilst its depression and embarrassments have greatly deteriorated the situation of almost every other class of society. The vivifying influence of the sums expended by the proprietors and cultivators of the soil, has been felt in every branch of trade and manufactures ; and nothing can be clearer than that any material diminution of the demand thus created, must tend to the great loss, embarrassment, or ruin of those by whom it was supplied. The operation of this cause has been within the last few years seriously and lamentably experienced, and many of those who are most interested must have been convinced, that no accession of foreign trade either did or could compensate them for the loss they sustained by the decreased demand at home. It is evident that the more money there is to expend, the greater will be the demand for every article of comfort, convenience, or luxury ; and, consequently, the more of human industry and labour will be required to produce or manufacture the article thus wanted. Diminish the existing cause, and, of course, the effect will be proportionably lessened ; fewer articles, and those of less price, will be wanted, and a smaller proportion of industry and labour will

be required to furnish them. Whatever, therefore, tends materially to reduce the incomes of any considerable class in the State, produces, from the great variety of ramifications through which the consequences of a much decreased demand operates, an amount of evil and of suffering, which, in the first instance, can scarcely be estimated, but which in its progress becomes too fearfully apparent.

It is in vain to say that this is artificial; every association of human society must necessarily, to a greater or less extent, be artificial, nor can it be otherwise without dissolving the very bonds by which it is held together, and reducing it to its first elements, or, in other words, to a state of nature. There may be systems which are too highly artificial; but because they are so, to apply to them the rude axe of demolition would be little short of madness, producing as it inevitably must, an accumulated mass of human suffering which would be dreadful to contemplate. The only safe remedy, if one be requisite, is to make alterations slowly and cautiously, so as gradually to effect the desired change; and even this cannot be done without much loss and detriment to numberless individuals. But it is not merely this: all the great and paramount interests of the State, involving as they do its greatness, its power, its station and rank, and even its political existence, if its revenue is but barely sufficient to meet or to cover its expenditure, it must be obvious that whatever tends to diminish

its income tends also to disorganize, as it were, its functions, and if greatly lessened, to render it powerless and incapable of maintaining its rank amongst nations, or even of vigorously or effectually defending itself. The resources of a State must of course either flourish or decay in proportion to the prosperous or adverse condition of the classes of which it is composed; all those classes deal with and pay each other, if not in some instances in a direct yet in a circuitous course, and what is taken from one is necessarily a deduction from the profits or income of others.

It therefore becomes essential to touch lightly and with a tender hand any system, however it may have grown up, that involves the interests of numerous individuals; nothing being more alien to sound policy than to sacrifice to a general principle either the prosperity of a State or the welfare of any of the larger bodies of persons of which it is composed. The very essence of good government frequently is, the making the best compromise that circumstances will permit between opposite or conflicting interests, or between the furtherance of a principle believed to be of great importance and the care of the interests of those who would be affected by its operation. Nor can this be considered at all impolitic, when it is notorious that many measures are and have been materially altered from their original purport and intent, merely to accommodate, or not to shock, the prejudices of



any numerous body of the people, and this undoubtedly in strict conformity with the wisdom of practical statesmen. There is nothing perhaps more striking than the great difference that frequently exists between what appears to be the best in theory, and what is found by experience to be practically the most beneficial; and political economists, whose science is yet in its infancy, have in general much to unlearn before they can become competent teachers of what is the most really useful, and at the same time not more injurious than beneficial.

Were the prices of agricultural produce in Great Britain driven down to the low rate which some seem to have contemplated, by the too easy introduction of commodities of a similar description, the growth of foreign soils, it is by no means too much to say that the depreciation in the value of land and contingent property would amount to £600,000,000; and where is the foreign trade to be found that could by possibility compensate for such an enormous deficit, which must in its effects involve the utter ruin of almost every class of the community. It is not merely the landholders, the farmers, and the agricultural labourers, but the greater proportion of the merchants, the traders, the shopkeepers, the artizans, and mechanics, and in addition, of the professional men and men of literature and science, who would be involved in the wide-spreading calamity; whilst in the revenue there would be, as a

necessary consequence, a lamentable falling off, and the incomes of all who in any shape depend upon it must be most seriously diminished, if not in many instances nearly annihilated. This would be to destroy the main source of England's greatness, that continual accumulation of surplus capital, which has enabled her to arbitrate the destinies of Europe, and triumphantly rule in so many parts of the globe. How much we owe to our fleets and armies, and to the patriotism and adventurous spirit of numbers of our fellow-countrymen, every one knows and feels; but all must be convinced that, without a large disposable capital, the skill and valour of our officers, the bravery and discipline of our seamen and soldiers, or the genius, the talents, or speculative industry of so many of our compatriots, would have been comparatively of little avail.

There are so many examples given in the present day of the modes of issuing "Particulars" of estates for sale, that we give the following as, in our humble opinion, comprehensive and concise specimens. The chief attention is simplicity and brevity, avoiding all multiplicity and complexity of detail.

*Particulars of the Estates of Rosehaugh and Little Suddie, County of Ross, N.B.*

I.—SITUATION.

These estates are situated in the parishes of Avoch, Knockbain, and Rosemarkie, in the county

of Ross, and in one of the most fertile districts in the north of Scotland, known as the Black Isle. They extend along the northern shore of the Moray Frith, and close to the ports of Avoch and Fortrose.

The estates are within a short distance of Inverness and Dingwall, and from these towns there is uninterrupted railway communication to Edinburgh and London. The Inverness and Perth Railway, affording enlarged and more direct communication with the district, and shortening the journey to London and the South by about sixty miles, has been partly opened, and is expected to be immediately opened throughout. A railway is also in contemplation through part of the Rosehaugh Estates, as shown by the plan, connecting Fortrose with Inverness, the survey having been made, and other preliminaries arranged.

## II.—EXTENT.

The lands extend to about 6406 acres, and are of superior quality; of these, about 4013 acres are arable, about 1220 acres are improvable pasture, and nearly 904 acres are under wood, in a healthy and thriving condition. The improvable pasture has been and is being largely brought under cultivation by the tenants; and the cultivation must be completed by the expiry of the present leases. The estate is well suited for being laid out into large

farms; it possesses good soil, capable of growing the finest quality of grain and rearing the finest cattle, and there is abundance of water, and stone for building and fencing purposes. The patronage of the parish church of Avoch will be sold with the estate, and the living is a valuable one. The plantations and woods are in a healthy and thriving condition, and will soon become a source of considerable revenue, especially as they are situated so near the port of Inverness.

### III.—RENTAL, ETC.

There are about 65 tenants of farms on the estate, the great majority of whom hold under leases, most of which expire in 1876. There are also a number of fishermen, cottagers, and others, who hold small possessions on yearly tenure. The yearly value is estimated to amount to £6870, and the rents are payable at Martinmas, Candlemas, Whitsuntide, and Lammas. These rents are moderate, and the tenants are of a good class, as is evidenced by the fact, that there are no arrears whatever. The farm-houses and steadings are in good order, many of them having been erected only a few years ago, and the lands are thoroughly drained.

### IV.—BURDENS.

The whole annual burdens payable from the estates amount to £946 7s. 5d. Of this sum the

stipends payable to the ministers of the various parishes in which the lands lie amount to about £202 11s. 11d.; schoolmasters' salaries, £38 8s. 3d.; bishopric and earldom rents (which fluctuate according to the Fiars prices), £234 13s. 7d.; poor rates, £271 7s. 11d. The teinds were valued in 1800; and the present free teind is about £24 19s. 10d. The amount of meliorations due to tenants is £3062 7s. 6d.; but they are bound to maintain the farm buildings as of the value at their entry. According to the custom of the country, these meliorations are usually paid by the incoming to the outgoing tenant.

#### V.—MANSION-HOUSE, OFFICES, ETC.

The Mansion-House, which is a most desirable residence, and in excellent order, occupies an elevated, well-wooded, and sheltered position, having an extensive lawn stretching in front to the south, and commanding a view of the Moray Frith. It contains dining-room, double drawing-room, library, fourteen bedrooms, several dressing-rooms, and general accommodation suitable for a nobleman's family. A commodious stable and coach-house, with ice-house and larder, are conveniently near the mansion-house. The gardens are of great beauty, and extend to about eleven acres. They are situated immediately to the east of the mansion-house, on a terraced slope, arranged with exquisite taste. They contain several large pine and peach



houses, stocked with the finest quality of vines; conservatories, ornamental house for gardener, forcing pits, and fruit-rooms; while the fruit-walls are heated by water-pipes. There is also an ample supply of fruit trees and vegetables; and the whole, including the flower garden, have been kept in admirable order.

There is a most complete and admirably-arranged farm homestead for the lands adjoining the mansion-house, containing barns, stables, fatting-stalls, cow-houses, piggeries, granaries, and wool stores; and also a comfortable residence for the farm overseer.

#### VI.—SHOOTINGS, ETC.

The estates are well stocked with game, and there are wild fowl in Munlochy Bay, which bounds part of the property. Excellent grouse shooting and deer stalking may be had in the neighbourhood, if desired. Munlochy village, where there is a post-office, is within a short distance of the mansion-house.

There is a right to the salmon fishings at Castleton, in the Moray Frith.

#### VII.—HOLDING.

The estates are holden of the Crown, with the exception of the lands of Craigland, which are holden of a *subject-superior*, for payment of an annual feu-duty of £14 5s. 11d.

## ABSTRACT.

RENTAL and ESTIMATED VALUE of UNLET POR- TIONS of ESTATES . . . .	£6870 0 0
---	-----------

## ANNUAL PUBLIC BURDENS.

Land-tax . . . .	£4 5 7
Bishopric and earldom rents . . . .	234 13 7
Police assessment . .	36 11 7
Prisons assessment for current expenses . .	12 13 7
Assessment for contin- gencies . . . .	6 1 9
District road assessment .	90 6 5
Assessment for repair of Parliamentary roads and bridges . . . .	16 1 1
Assessment for prisons .	16 9 10
Stipend to the minister of Avoch . . . .	162 0 10
Stipend to the minister of Knockbain . . .	20 10 8
Stipend to the minister of Rosemarkie . . .	20 0 5
Salary to Avoch school- master . . . .	33 1 5
Carried forward .	652 16 9

Brought forward	652	16	9	6870	0	0
Salary to Knockbain schoolmaster . . .	3	11	6			
Salary to Rosemarkie schoolmaster . . .	1	15	4			
Poor-rates to the parochial board of Avoch . . .	227	6	11			
Sir Kenneth Mackenzie's mortification, for sup- port of the poor, etc. .	2	10	0			
Poor-rates to the parochial board of Knockbain .	25	0	0			
Poor-rates to the parochial board of Rosemarkie .	19	1	0			
Feu-duty for the lands of Craigland . . . . .	14	5	11			
	<hr/>			946	7	5
				<hr/>		
				£5923	12	7
				<hr/>		

Farther particulars may be obtained on application to D. G. F. Macdonald, Esq., C.E., Spring Gardens, London.

The magnificent estate has been sold for the inadequate price of £145,000. The tenantry have indeed lost, in Sir James Mackenzie, a most worthy and excellent landlord. In all his relations with them there was a manly amenity, a conscientious cordiality and kindness which made him a model landlord, and the central charm of his own happy tenants. The Honourable Baronet has raised au

enviable and lasting monument to his life and memory—"the golden opinion and respect of his fellow men." He is truly a great loss to the north, and when he is called to the hallowed spot where the bones of his kindred sleep, the recollection of his private worth will still be warmly and affectionately remembered. How applicable to him are the words of the greatest of Scotland's bards—

"The rank is but the guinea's stamp,  
The man's the goud for a' that."

---

*Particulars and Rental of The Estate of Meikle Suddie, situate in the Parishes of Knockbain and Avoch, County of Ross, N.B., the Property of Sir James J. R. Mackenzie, of Scatwell, Bart., and the Right Honourable Lady Anne Mackenzie.*

The Estate of Meikle Suddie is estimated, according to a recent survey, to extend to 790 acres, 1 rood, 19 poles. Of these, 493 acres, 2 roods, 32 perches are arable; 233 acres, 1 rood, 1 perch are pasture and waste; 63 acres, 1 rood, 26 perches are wood and reserved land.

The property is situate in one of the finest and most improving of the Northern Counties. It is intersected by good roads, has a southern aspect, a mild climate, and a healthy position, and to which there is uninterrupted railway communication from Lon-

don to within seven miles. Moreover, a line has been surveyed from the Ord Station to Fortrose, passing through the property. The Estate is only 18 hours' distant from London by railway, and 70 by sea.

The lands are of superior quality, and are remarkably well farmed by highly respectable and industrious tenants. The present rental is very considerably below what will be realized at the next letting, and as the leases of the Mains Farm, and that of the adjoining Farm of Tullich, expire this year, a purchaser would have the advantage of occupying the chief residence on the property without delay, and of farming on his own account, should he so wish.

The Mansion House is a very desirable residence, in good condition, occupying an elevated and sheltered position, commanding extensive views of the surrounding country.

The Estate is well stocked with game; and, being partly bounded by Munlochy Bay, is abundantly supplied with wild duck and other sea fowl. Moreover, excellent grouse-shooting and deer-stalking may be rented within easy distances, if required. There is a post-office at Munlochy village, close to Suddie House.

Meikle Suddie holds out, in addition to its present advanced condition, many undeveloped sources for the advantageous employment of capital. And it may with truth be said that so desirable and beautiful an Estate is rarely in the market.



CONTENTS; PRESENT AND EXPECTED RENTAL.

No. on Plan.	NAMES OF PLACES.	TENANTS' NAMES.	Arable Land.	Pasture and Waste.	Wood and Reserved Ground.	TOTAL.	Expiry of Leases.	Present Rental.	Rental expected next Letting.
			A. R. P.	A. R. P.	A. R. P.	A. R. P.		£ s. d.	£ s. d.
I.	Mains of, or Wester Suddie	John Campbell ...	234 2 9	13 3 22	22 1 26	270 3 17	1869	276 0 0	472 0 0
II.	Suddie Quarry ...	George Batches ...	0 0 16	2 3 17	...	2 3 33	1869	26 0 0	26 0 0
III.	Farm of Gateside	Roderick Maclellan	101 2 12	17 0 11	...	118 2 23	1871	116 16 3	177 0 0
IV.	Farm of Tullich ...	Henry Gair .....	146 0 34	3 3 16	...	150 0 10	1869	70 17 6	225 0 0
V.	Caddock or Black-bog	Let annually .....	11 1 1	116 2 15	...	127 2 16	—	40 0 0	40 0 0
VI.	Reserved Lands ...	Hugh Junor .....	...	...	41 0 0	41 0 0	—	13 14 0	13 14 0
VII.	Part of Munloch Bay	.....	...	79 0 0	...	79 0 0	—	...	...
		TOTAL.....	493 2 32	233 1 1	63 1 26	790 1 19	—	543 7 9	953 14 0

ANNUAL PUBLIC BURDENS.

	£ s. d.
Minister's Stipend	... 25 10 5
Schoolmaster's Salary	... 3 2 9
Poor's Rates	... 26 4 10
Assessments for Roads, &c.	... 20 2 0
	<u>£75 0 0</u>

The foregoing rentals and statements are believed to be correct: intending purchasers are understood, however, to have satisfied themselves regarding them. The drainage rent charges will be redeemed by the seller.

D. G. F. MACDONALD, C.E.

*Spring Gardens, London,*  
*February, 1868.*

(The Property is not now for Sale.)

---

We have already given the covenants of an English lease, and as the stipulations of a Scotch lease are to many persons interesting, we give a specimen.

#### ARTICLES, CONDITIONS, AND REGULATIONS

*Under and in terms of which the Farms, Possessions, and Crofts on the Lands and Estates of Rosehaugh and The Suddies, the property of Sir James John Randoll Mackenzie, Baronet, lying in the Parishes of Aroch, Rosemarkie, and Kilmuir Wester, and County of Ross, are to be let, and which are to be specially referred to in the Missives or Minutes of Tack or extended Leases*

*entered into between the Proprietor and the respective Tenants, and to be held as obligatory on the said Tenants, their Heirs and Successors, unless in so far as may be altered or varied by any special conditions in the said Missives or Minutes of Tack or extended Leases, and which Regulations and Conditions are also declared to be obligatory on all the Tenants.*

1. All assignees, whether legal, voluntary, or conventional, and sub-tenants, are excluded; heirs-portioners are also excluded, the eldest daughter having right to succeed without division. The tenants must reside personally, with their families, on their farms, and always have a sufficient stocking thereon.

2. Whatever the terms of entry may be, the terms of removal at the termination of the lease shall be as follows, viz.:—From the gardens and kail yards, and the break of land for fallow and green crop, on the 1st of March; from the houses and second year's grass, and all other pasture land attached to the farm, at Whitsunday; from the break of land under hay or first year's grass, at Lammas; and from the lands under grain crops, at the separation of the crop of each field from the ground; so that, as each field is cleared, the incoming tenant may enter to it, although the crop may not be separated from the other fields.

3. The outgoing tenant shall be bound to give the

break of land which falls to be in fallow or green crop the year of his removal, at least one sufficient ploughing during the preceding autumn, and to allow the proprietor, or incoming tenant, sow grass seeds along with the last crop, and he shall harrow and roll the same, both without compensation, and after the 1st of March allow full right and liberty to plough the break of land left for fallow or green crop; and it is hereby declared that it shall be in the option of the proprietor or incoming tenant (the latter always finding caution) to take or hold the outgoing tenant's waygoing grain crop at the fiars' prices of the county, the quantity to be ascertained on the ground by the appraisement of arbiters mutually chosen, or an oversman to be named by them, in case of their not agreeing, betwixt the 25th day of July and the middle of August, or earlier if the crop is ready for reaping; but if the proprietor or incoming tenant shall fail to declare his option as aforesaid on or before the 1st day of July, the outgoing tenant shall be entitled to dispose of it in such way as he may think best. The proprietor or incoming tenant shall pay for the labour on the fallow ground, and will have the option to take from the outgoing tenant the whole break of the first year's grass on the farm, such being declared in writing to the outgoing tenant on or before the 1st day of July previously, all at valuation as aforesaid. The outgoing tenant shall not be entitled to anything for second year's grass, nor for any dykes,

buildings, or improvements, except as herein specified.

4. The tenants shall be bound to cultivate their lands according to the rules of good husbandry, not taking two white crops in succession; and to commence, when required thereto by the proprietor, or his heirs and successors, a five-course shift—that is, one-fifth of the whole arable land shall be in new grass, one-fifth in second grass, and one-fifth under fallow or green crop, and not more than two-fifths under grain crops in the same year; which shift they shall in any case adopt during the last five years of their leases. They shall also be bound to consume upon their respective possessions the whole straw, turnips, and fodder that shall grow upon the land; and they shall not sell it or give it away, except the clover, hay, and straw of the waygoing crop, if not taken as aforesaid; and they shall lay on the ground the whole dung that shall be made upon the same, and upon no account give away or sell any of the same; and they shall at the expiry of their leases leave the whole dung made upon their farms, after the green or fallow crop of the former year shall have been sown, carefully gathered together for the use of the proprietor or incoming tenant, to whom the same shall belong on payment of the value thereof by valuation as aforesaid; and if the tenants shall sell or give away any of the said fodder or dung, they shall be bound to pay the proprietor five shillings sterling for every sheaf of



straw, and the like sum for every cart-load of dung so sold or given away.

5. The tenants are bound to keep the whole of the ground let free of rag-weed, broom, whins, thistles, docks, and other noxious weeds, as well as the tops and sides of dykes and roads bordering on their respective farms, and on grass of more than one year old. These weeds must be cut down twice every season, once before the 10th of July, and again before the 10th day of September, so as to prevent their running to seed; and if not done by these days thoroughly, the proprietor shall be at liberty to cause it to be done, and to charge the expense thereof along with the rent.

6. Cattle, sheep, horses, and other bestial shall at all times be herded by careful persons, unless within fencible enclosures, or on tether, and, in particular, be kept out of plantations, under penalty of 5s. per head for every offence; and no horse or other animal must be permitted, under any pretence, to roam at large on or about the public roads, under a penalty of 10s. per animal so found; and all damages to the enclosures and plantations by the tenants, their servants, cattle, or sheep, &c., shall be made good by the tenants according to the judgment of the proprietor.

7. The tenants shall maintain during the currency, and leave at the termination of their leases, the houses and dykes in good and tenantable condition, and shall promptly repair any damage to the

drains made or to be made on their lands, and keep all outfalls in a clear and workable condition ; and should they fail to implement this condition, and that the drains or outfalls are in any way neglected by any of the tenants, the proprietor or his factor shall cause any neglect to be attended to, and to charge the tenant with such expense as may be incurred in removing or remedying such neglect, which the tenant must pay with the moiety of rent that shall become due immediately after such has been effected ; and where outfalls are between farms, the tenants of such farms shall mutually join in scouring the same, and, failing, each shall be bound to pay an equal share of the expense in effecting the same ; they shall also protect and defend from injury all trees already planted or which may be planted by the proprietor in or around their farms or gardens. They shall not disfigure their own possessions, nor trespass on any part of the proprietor's lands, by digging holes for earth or clay, nor remove the surface for divots or the like ; neither shall they have or claim any right of pasturage or servitude beyond their respective possessions.

8. The incoming tenants shall be obliged to pay the meliorations to the outgoing tenants as the same shall be certified by the proprietor or his factor, and at their removal the tenants shall only be entitled to reimbursement of the sums so paid, provided the buildings shall be found to be of equal or greater value in the estimation or arbiters

mutually chosen, exclusive of quarrying and carriage of materials, for which no allowance will be given, and provided the rent or any other claim exigible by the landlord shall have been first fully paid up to him by the tenants. No houses shall be built by the tenants on any part of their farms without the special written permission of the proprietor or his factor, and houses at present on the farms, and not required for the accommodation of the farm, must be pulled down immediately on receiving notice to that effect from the proprietor or his factor, and failing thereof, the proprietor reserves to himself the power to do so at the tenant's expense.

9. The tenants shall grind all their grindable corn at the Mill of Avoch (or elsewhere on the estate), and pay mill-dues and service conform to use and wont. The tenant of the Mill of Avoch (or elsewhere on the estate) shall give ready and sufficient work at the mill, and failing thereof, and on any well grounded complaint being lodged against him to the proprietor or his factor for incivility, dishonesty, or incapacity, he shall, at the option of the proprietor, forfeit his lease.

10. The tenants shall be bound to trench and bring into cultivation, within ten years from Whitsunday 1855, the whole of the improvable ground within their respective possessions. Any part afterwards remaining within the bounds in a waste or barren state shall be paid for, until improved as

aforesaid, at the rate of 10s. sterling of additional rent per acre, payable with the rent of the possessions ; or, in the proprietor's option, it shall be competent to him to resume possession of the said unimproved land, and let the same to others, or otherwise dispose thereof, without deduction from the rents stipulated for. In removing the stones from the trenched land, the tenants shall be bound to lay down such as shall be fit for dykes in such places as shall be pointed out to them by the ground officer ; and such of the small stones as shall not be required for drains shall be buried in deep trenches, or otherwise disposed of as shall be pointed out as aforesaid.

11. The tenants shall pay all parochial and public burdens as are legally chargeable against them.

12. Tenants paying rents from £5 to £20 shall furnish one horse and cart and one man, and above £20 of rent, two horses and carts and two men, with all necessary implements, three days in each year for the purpose of assisting in straighting, cleaning, or repairing channels of streams or rivulets on the estates, in erecting embankments or bulwarks, or in making or repairing parish roads through the property, or in any other work for its improvement, without any charge. Besides, the whole tenantry on the estates shall be bound to perform all necessary carriages, according to law and the custom of the country, for the building and repairing of churches, manses, and school-houses, as also for

repairing and rebuilding the meal mill or mills, and kiln or kilns, on the estate, and also the mill-dam, and to perform all other necessary mill services.

13. The tenants are also to pay annually at Martinmas, at the square of Rosehaugh, custom fowls—those paying from £5 to £20 of rent are to pay six, and those paying above £20 are to pay twelve fowls. The fowls are to be paid in kind when called for, but when not called for the tenants are to pay one shilling for each fowl, and two shillings for each on neglecting to pay when so called.

14. If any tenant or any member of his family who is entitled by law to be maintained by him, shall apply for or obtain admission to the poor's roll, he shall forfeit his lease.

15. No public-house for the sale of beer, spirits, &c., shall be kept by any tenant without the written consent of the proprietor himself for application for license, which consent the proprietor may at any time withdraw, without assigning cause or reason for such withdrawal; and should a tenant get license from a licensing court without the proprietor's consent, his lease shall in that case become null and void, and the proprietor shall have it in his power to remove the tenant from his possession as if no lease existed.

16. The proprietor reserves the whole game on the estates of every description, including therein the whole animals specified in and protected by the statute 2nd and 3rd William the Fourth, entitled



“An Act for the more effectual prevention of trespasses upon property by persons in pursuit of game in that part of Great Britain called Scotland,” with full power to himself, and any other person or persons having his permission, to hunt, shoot, or course thereon without interruption; and the tenants are bound to protect and preserve the game, and not to hunt, course, or shoot, or otherwise destroy the game themselves, or allow trespassers to do so, without giving warning to the proprietor, his factor, or his gamekeeper. The landlord also reserves to himself the exclusive right of killing rabbits; he will not hold himself responsible for damage which may be done to tenants’ crops by game, but will instruct his gamekeepers to have the rabbits kept down as much as possible. Tenants are neither to carry guns themselves nor to permit any person in their employment to do so, under any pretext whatsoever, on their farms, without special permission from the proprietor. Besides, the tenants shall be bound instantly to dismiss from their employment any person or persons who may be detected stealing or carrying away wood, injuring the plantations, poaching, or committing any other depredations on the estates, and to give notice and warning to the above effect to all the servants and others whom they may from time to time have in their employment.

17. All smuggling is strictly prohibited, and a legal conviction for such an offence before the she-

riff, magistrates, or other competent officer, will be followed by an immediate forfeiture of the lease. Dogs are not to be kept without the special permission of the proprietor, and should any of the tenants at any time be found with a dog or dogs in their possession, the proprietor, gamekeeper, or any other party having the proprietor's authority, shall be at liberty to destroy the dog or dogs without any compensation to the tenants, any law or custom to the contrary notwithstanding.

18. The proprietor reserves all mines, minerals, and quarries of whatever description within the bounds of the estates, with liberty to work the same at pleasure; and for that purpose to sink pits, build houses, make roads, and erect any other necessary works on the lands, the tenants being entitled to such surface damage and abatement of rent as may be determined on by mutual valuers. The proprietor also reserves right to shut up or alter roads, or make new roads through any part of the property, either for the general intercourse of the country, or for the accommodation of other particular farms on the estates, the tenants, however, to be entitled to such surface damage as may be determined on by mutual valuers; declaring always that in ascertaining such damage, the advantages that may accrue to the tenants therefrom shall be considered; and to plant hedges and trees in hedge-rows along the fences and subdivisions, and around the yard or garden of the farm, without making allowance to the tenant,

which planting the tenant shall be bound to preserve.

19. In case it shall be necessary or judged proper to make any alteration on farms by straightening marches or excambing lands with neighbouring proprietors or tenants, the proprietor shall have power to do so, and the tenants shall be bound to concur and acquiesce therein ; and the variation thereby occasioned in the rents, whether increase or diminution, shall be determined by men mutually chosen by them and the proprietor, or those acting for him at the time.

20. The farms are to be let as marked off on the ground, according to the survey and plan of George Campbell Smith, land surveyor, Banff, by whom (or by the land surveyor employed by the proprietor for the time being) all disputes on the subject of extent and boundaries shall be settled, or by reference to his plans ; and it is understood that the respective tenants have satisfied themselves as to the extent and boundaries of their farms, as therein described, before entering on their leases.

21. In the event of any tenant becoming bankrupt or divesting himself of his effects, or not having his farm fully stocked with cattle, implements, and effects *bonâ fide* his own property, the tack of such tenant shall, in the option of the proprietor, become null and void, and be forfeited ; and the proprietor shall be entitled to apply to the Judge Ordinary of the bounds, by summary process

of removal, for the immediate removal of such tenant.

22. In case the tenants shall fail in the punctual payment of rents, or in fulfilling the whole of these regulations incumbent on them, such failure, independent of the other penalties and compulsitors herein contained, shall be held and deemed a forfeiture of the lease, and the proprietor shall have it in his power to proceed in a removing, and obtain a decree on said failure before the Sheriff of the County, and each tenant whose minute, missive, or tack shall bear reference to these regulations, and his foresaids, hereby sustain the Sheriff's jurisdiction to that effect, any law or practice to the contrary notwithstanding; and it is hereby provided that, after the present regulations and conditions are extended and subscribed by the proprietor, the same shall be recorded and printed, and shall be held equally binding and obligatory, to all intents and purposes, on both parties, as if the same had been *verbatim* inserted in each minute, missive, or extended lease; and this provided these regulations are simply referred to in the missive, minute, or extended lease, or be signed or marked by the tenants as referable to any missive, minute, or extended lease, and mentioning the possession—dispensing, as each tenant for himself and his foresaids hereby does, with the solemnity of witnesses to their subscriptions hereto, or with any more formal testing clause to these presents, any law or

practice to the contrary notwithstanding; and these regulations shall in like manner be binding and obligatory on all tenants who shall subscribe a printed copy thereof, as relative to any previous missive, minute, or lease entered into with them, and that from and after the date of so subscribing, and during the remainder of the tack.

Lastly, all parties, both proprietor and tenants, and their foresaids, bind and oblige themselves respectively to implement, perform, and fulfil these regulations and conditions, under a penalty of one year's rent of each tenant's possessions, to be paid by the party or parties failing to the party or parties performing or willing to perform, over and above performance. And all parties, proprietor as well as tenants, consent to the registration hereof in the books of council and session, or others competent, therein to remain for preservation, and, if need be, that letters of horning on six days' charge, and all other execution necessary, may pass hereon in form as effairs; and to that effect they constitute

their procurators. In witness whereof these presents, written on this and the preceding pages of stamped paper by George Clark, clerk to George Mackenzie, writer in Dingwall, are subscribed by the said Sir James John Randoll Mackenzie, Baronet, at Dingwall, before these witnesses—Mr.



Ronald Douglas, residing at Conon Bridge, his factor, and Alexander Henderson, his coachman.

JAMES J. R. MACKENZIE.

RONALD DOUGLAS, Witness.

ALEXANDER HENDERSON, Witness.

(Recorded in the Sheriff Court books of Ross.)

---

The stipulation of this lease may, perhaps, appear to some persons extremely stringent, and apt to give rise to differences between the landlord and the occupiers of the farms. This, however, has not been the case, as we can testify from a long acquaintance with the honourable baronet and his tenants, although the same form of lease has been adhered to in treating with all the tenants on his extensive estates.

The clauses with reference to game are no doubt very strongly binding, and may be deemed rather oppressive in certain quarters. Yet it should be borne in mind that at the time the leases were drawn up there was well-grounded fear that the Game Laws would be wholly swept away by the Legislature, and the sports of the field left to the tender mercies of farmers and their friends. The clause was inserted therefore to protect the landowner in his just right, in the event of so palpable a violation of proprietary privileges passing into law.

It is very pleasing to note that Sir James Mackenzie, having a lively regard for the interests of

his tenantry, never permitted his properties to be overstocked with game. So considerate was he in this respect that he never had any unpleasantness with any of the occupiers of his land on the score of game preserving; yet he kept a fair and reasonable supply at all times. It is worthy of remark, too, that the Honourable Baronet invariably distributed the dead game amongst the many families on his estates, in that liberal spirit that characterized his everyday actions—thus setting a noble example; preferring to share the delicacies of the chase with his devoted and attached tenantry to selling it in the market.

Lord Westbury's measure for granting an inde-feasible title to land when once the title has been examined and registered, though only slowly coming into operation, is likely to be of great value to the country. Mr. Howard Reed, in his pamphlet on the subject, says:—"Land is now destined to play a very different part in the substantial progress of this country. This liberative measure will bring a surprising amount of latent capital into operation, and will rapidly increase the value of land." This is true, for owners heretofore have had for the most part to be satisfied with the returns derivable from the mere produce of their land, now they will be able to use the land itself. Money will be raised upon it without difficulty, either for its own improvement or for any other purpose whatever.

The main difficulties in the way of all agricultural improvements are at once removed by Lord West-

bury's Act. The capital required for buildings, cottages, roads, land drainage, everything which the estate requires, will be raised at once without the preliminary expenses which frighten a landowner now, and without any transfer of authority over his property to the agency of any company or association outside, whenever the title, of which that Act provides so simple and accessible a declaration, shall have been obtained.

The vexatious difficulties and expenses incurred in the sale and purchase of land are too well known and felt to need much remark. Some pointed instances have appeared in the *Times*, in answer to Lord Chelmsford's unsuccessful attempt, in the House of Lords, to prove the failure of Lord Westbury's Act. An extract from one letter will serve as a sample :—

“*A Now Happy Landowner*” says, “Wanting money, and having a valuable landed estate, with a complicated title, I mortgaged it for £3500. The law costs exceeded £500. I made a second mortgage, and had again to incur frightful costs. I determined to register my title, subject to the mortgages, and obtained a certificate of an indefeasible title at a total cost of £50. With the certificate in my hand, and wishing to consolidate my mortgages, I borrowed £4,000. The legal expenses of the last mortgage do not exceed £5.”

Prior to any sketch of the ex-Lord Chancellor's Act, it may be well to remark that his Lordship admits

all to be perfectly satisfactory until we come to this reduplication of work. He grants the necessity of elaborate research to settle the question of right, but desires, when once the roots of the title are well traced out, together with the estates and interests which may be had in the land—estates for life, intail, dower, jointures, portions, terms, charges, powers, in possession or remainder, vested or contingent, so that right and possession at once concur and centre in one person or persons, that this investigation suffice, once for all, and an indefeasible title be then given. The cost of the operation bears no undue proportion, in his opinion, to the labour expended and the labour requisite; but if the work be well done, he demands that the title, which is declared to be sound, be held such for ever.

Under this impression his Lordship framed that Act, designed “*to give certainty to the title of real estates, to facilitate the proof thereof, and to render the dealing with land more simple and economical,*” to which attention is now invited.

In the first place, the Act is *permissive*, and applies only to *England*. It sanctions the establishment of a Registry of the Title to Landed Estates being confined to estates of *freehold tenure* and *leasehold estates in freehold lands*.

The office, situated in London, is presided over by a serjeant-at-law or barrister, of ten years’ standing, and by assistant registrars, assisted by examiners of title, appointed by the Crown and the Lord Chan-

cellor. These and all other officers are sworn to absolute secrecy with respect to the affairs of the office, the books of which are closed to all, excepting to such persons as can produce the permission of the Registrar, or the Order of the Court of Chancery.

The following persons are authorized to apply for registration of title, viz. :—

1. The owner in fee simple.
2. Persons who collectively are owners of the fee simple, or who have the power of acquiring the same.
3. Persons who have the power of appointing the fee simple.
4. Trustees for sale of the fee simple.
5. The owner of the first estate of freehold, and first vested estate of inheritance.
6. Any purchaser of a fee simple, where his contract empowers him so to do, or the vendor consents.
7. Any person authorized by the Court of Chancery to make such application.

The same section (the 4th) also provides that application may be made, although the estate of the person applying be subject to charges and incumbrances.

Application may be made for registration either by the owner personally, his solicitor, or his agent. It is usually presented in writing, and should be accompanied by an abstract of title such as is furnished by a vendor to a purchaser; exact copies of



all maps referred to in the abstract, or the originals ; and an affidavit, to the effect that such document is a *bonâ fide* abstract of the title to the property, and that no document or circumstance affecting the title is withheld. The duties of the Registrar then commence. His examiners are set to work, and should it appear from the abstract that the title “ is such as a court of equity would hold to be a valid marketable title,” they state their conviction, and proceed to more profound researches. Such deeds as they require must be sent to them, or they may be lodged somewhere for inspection. The identity of the lands with the descriptions contained in the title deeds must be fully established. When such description has been settled, and the Registrar is satisfied with the title shown to the land, public notice must be given that, in three months’ time, should no objection prevent, the land will be registered with an indefeasible title. A copy of this notice must also be served on every adjoining occupier, or person to whom such occupier pays rent, &c., so that there may be opportunity for a free appeal against the procedure.

In case no objection be made at the close of the specified period, the Registrar is authorized to complete such registration in the following manner :— “ First, he shall enter in a book called ‘ The Register of Estates with Indefeasible Title,’ such description of the estate as shall be finally approved of, and shall annex thereto any map or plan which

shall be deemed necessary, and shall distinguish the estate so entered by a particular number or numbers, and the entry shall refer to another book, called 'The Record of Title to Lands on the Registry;' Secondly, in the last-mentioned book, under the same number or numbers, shall be entered in concise terms an exact record of the existing estates, powers, and interests in the land so registered, and the names and descriptions of the persons, or classes of persons that are or may become entitled thereto respectively; Thirdly, in a book, entitled 'The Register of Mortgages and Incumbrances,' shall be entered, under the same number or numbers, an account of all the charges and incumbrances affecting the lands, or any part thereof, or the estate or interest therein of any person named in the record of title."

The land certificate is then handed to the person who is named and described in the record of title as the owner, bearing an exact copy of all these entries, under the seal of the office, and signed by the Registrar.

It will be seen that this document simply contains the bare facts as to the estate and interests created by the deeds examined. A deed is rarely read before it is signed. The solicitor merely tells the signee in a few words the pith of it, and he is content to pay or receive £20,000 or £30,000 on such showing. These few words of explanation—say that John Smith was tenant for life and Edward

Smith tenant in fee in remainder—constitute the records of what is called “The Record of Title.”

Land, with a title *not* indefeasible, may be registered under certain conditions, the advantage being that, after a period defined by the Registrar (all future dealings with the land being also registered), the non-guaranteed title passes into the category of statutory titles.

In the case of leasehold estates the course to be pursued is equally simple.

There are two other modes of registration: one the registration of an estate under a decree of the Court of Chancery; the other, a power given to that Court of selling an estate with a Parliamentary title. Either may be used by those who wish to simplify complicated titles, or by parties not desirous of subjecting their titles to the examination which must take place in the case of a private registration.

Now for a word or two affecting the *transfer* of registered land. Land so registered may be conveyed by statutory disposition, by endorsement on the land certificate, by deposit of the land certificate, and by deed or will; but no equitable mortgage or lien shall be created by a deposit of title deeds.

The registered owner, on having passed through this very simple and inexpensive ordeal, is a man to be much congratulated. He places the little witness to his lordship in his pocket-book, and clears out his

piles of musty parchments for a bonfire. Should he want money, he simply presents his certificate to his banker, who compares it with the register (which is accessible only for such purposes), and without a day's delay makes the required advance. Both parties to this transaction are advantaged—the lender, inasmuch as he receives, without trouble, the best possible security;—the borrower, because he is not required to wait till his title be proved by the solicitor to the bank, and because the accommodation can be obtained with more secrecy than under the old system. The certificate on a foregoing page is the copy of a *bonâ fide* document, which is the result of the investigation of an abstract of title consisting of 100 sheets. The owner of this property will, when he wants to sell it, have nothing to do but to carry this document to the auctioneer, and the purchaser will have nothing to do but to see that the document corresponds with the entry in the register. Instead of entering into an investigation lasting for six months, or, perhaps, for two or three years, an inspection of the registry acquaints him with the facts of the case, and upon the payment of 5s. or 6s. beyond the price of the moderate stamp imposed by Government, the purchaser has his name entered upon the book, and receives a document corresponding with the one just produced, and the estate is conveyed to him for ever, with an indefeasible title. If he wants money, he has only to hand over this mortgage, with a corresponding statement,

which may be done for a few shillings. If he does not wish the transaction to be known, he has simply to go to his banker's with the document, and to say to him, "Will you lend me £5,000 or £10,000?" He can then deposit it with the banker, who would receive it with the most perfect confidence, because, *while the document is in his hands, there can be no possible dealing with the land, and the document itself proves the indefeasible title of the landowner.*

Land is now destined to play a very different part in the substantial progress of this country. This liberative measure will bring a surprising amount of latent capital into operation, and will rapidly increase the value of land. While it was held to be unwise to receive deeds as security for money lent, without examination, examination would, in the majority of cases, be insisted on, and would be attended with such heavy expenses as to deter landowners from undertaking any improvements with borrowed capital. It appears from information supplied to the Royal Commission of 1857, by some forty or fifty solicitors and conveyancers throughout the country, that the average cost of drawing abstracts and conducting investigations is about £70 or £100. Sometimes it reaches, as we have seen, £500; and it rarely, if ever, including the stamps, falls below £50. In the case of small properties, this hindrance to transfer or mortgage, which amounts to temporary transfer, is severely felt, the cost being the same for two or three acres



as for fifty or a hundred acres, held under one title, and any measure that will remove it must act beneficially, not only because it does away with a species of highly-paid work, which is quite as unproductive to the country as the work performed by felons at the wheel; but because, by making land as easy of transfer as the steam-ship "Great Victoria" in Liverpool Dock-yard, it immensely increases the productive resources of the country.

We have, in the late lamented Duke of Northumberland, a remarkable instance of princely expenditure on estate improvements and charitable objects. The Duke's possessions in Northumberland comprised 3,000 acres of woodlands, 116,200 acres of hill pasture, grass lands, &c., 38,900 acres of tillage occupation, and 4,700 waste, sea-shore, rock, &c., in all 162,800 acres. During his occupancy, His Grace, down to the 1st January, 1864, had expended £39,689 in roads and bridges, £308,336 12s. 9d. in building cottages, &c., and £176,582 4s. in drainage upon his vast estates. 35,203 acres of land have been thoroughly drained, and upwards of 1,000 cottages have been either built or put into good repair. While improving the homesteads of his farmers and the cottages of his labourers, the deceased nobleman expended a quarter of a million sterling upon the Prudhoe Tower and other extensive works at Alnwick Castle, and his great scheme of church extension, just completed before his death, has involved an outlay of £100,000.

His Grace was very anxious, when he found his health was failing, to complete a large and magnificent scheme that he had long contemplated, for the education of the children of fishermen and seamen on the coast of Northumberland, and it is stated that the endowment of schools in the villages of Whitley, Tynemouth, Percy Main, and at North Shields, was completed shortly before his death. The Duke of Northumberland built the Tyne Sailors' Home at a cost of upwards of £7,000. He also established lifeboats and lifeboat stations at Hauxley, Tynemouth, Cullercoats, and Newbiggin, and was a magnificent supporter of all the local charities. For many years of his life the Duke took a lively interest in the explorations of the Roman wall which have been undertaken from time to time. He also spent considerable sums of money in making excavations at Greaves Ash and other old British camps in the fastnesses of the Cheviot Hills. Never within the memory of the present generation has there been such a universal manifestation of sorrow in the County of Northumberland, for the loss of a public man, as was shown when it became known that his Grace was dead: and the expression of honest regret was not confined to any particular class, but found utterance among the lowest as well as the highest.

The strictest care should be taken that all materials produced by the estate fit for manure or other useful purposes, such as marl, limestone,

virgin earth, &c., be disposed of and used among the tenants of the estate only, and never carried from it. Anything to the contrary would be to rob the soil of a natural and most valuable means of improvement. Moreover, the construction of railroads through estates should be encouraged, as tending greatly to enhance the value of property, and to augment the rent-roll. Caution should, however, be exercised in making an estate liable for any large share of the necessary funds for construction. Before, therefore, entering upon the construction of any railroad, it is usual to ascertain its cost, and the amount of business which the road will perform, in order to judge of its value for investment; and should one be formed and afterwards found to be unprofitable, it manifestly argues not only want of judgment in the investors, but also incompetence on the part of those entrusted with its construction. Indeed, there is nothing either mysterious or complicated in the forming and working of a railroad, as the laws which govern its operations are similar to those which govern nearly all business transactions. Some are profitable, others unprofitable, as investments. For instance, if a railroad, made at a cost of, say, £14,000 per mile, yields a net income of four per cent. per annum, it would, if made at £7,000 per mile, yield a net income of eight per cent. per annum. Thus, then, it is evident that the element of first cost is a very important one. It not unfre-

quently occurs, however, that a costly road proves a profitable one ; but then its success is owing to the large and compensating traffic.

From these facts may be deduced a few general laws which will apply everywhere in determining upon the construction of railroads :—

1. Where the cost of a road is excessive and the traffic light, the investment is unprofitable.

2. Where the cost is great and the traffic large, the investment is a satisfactory one.

3. Where a road is cheaply constructed, below the average cost, and the traffic light, it will pay good returns.

4. Where the cost is light, and the traffic very large, it becomes in the highest degree profitable.

Excessive cost is accounted for by the natural obstacles encountered in construction, such as heavy rock cuts, tunnels, expensive bridges, viaducts, deep excavations and embankments, and land damages, or right of way ; and these are causes of expense which cannot be set aside.

The introduction of railways into farms will be of the greatest possible benefit, as it is the carrying off and bringing home of manure, crops, &c., that eat up half the profit. On lands highly farmed this labour becomes very great, and a great relief will be felt by the adoption of any plan which lessens the cost of this heavy item. It is to Mr. Crosskill, of Beverley, that we are indebted for the introduction of farm railways ; he has constructed them

in such a manner that they become quite portable, and may be laid down and taken up with the greatest ease. The following are his charges for the portable farm railway for carrying 15 cwt. loads :—

	£	s.	d.
100 yards, or 20 lengths of rail, at 4s. per yard . . . . .	20	0	0
1 No. 2 Truck, with end tipper .	5	10	0
1 No. 5 Truck, to tip on either side . . . . .	5	10	0
1 Turntable . . . . .	5	10	0
	<hr/>		
	£36	10	0

<i>Extras.</i> —2 sets of points, with double rails, each 15 feet long .				7	10	0
2 sets of double rails to join the double lines, each 15 feet long. . . . .				4	10	0
2 turning curves, to join a double line, each 10 feet long . . . . .				2	0	0
4 turning curves, to branch off the straight line. .				4	0	0
				<hr/>		
				£54	10	0

Landowners and others wishing to use their own wood, may be supplied with the rails only. Angle railway iron, drilled and straightened,



1s. 6d. per yard.    Sockets, 6d. each.    Catches,  
1d. each.

*Permanent and Portable Farm Railway, to  
carry 40 cwt. loads.*

W. C. will undertake to lay permanent  
rails, with wood sleepers, fitted 3 feet  
in gauge, including all materials and  
labour, except carriage and one man's  
travelling expenses, at per yard . . . .

Portable rails, with wood sleepers in 12  
feet lengths, fitted 3 feet in gauge,  
for two men to carry and lay down  
from the permanent rail across any  
part of a field, at per yard . . . .

N.B.—All extra levellings, embankments, or  
earthwork, where necessary, to be done at  
the expense of the parties.

This railway is very serviceable in taking up  
turnips, and is much better and cheaper than carts  
going upon the wet land, which do much damage.  
With a hundred yards of rail, a quarter of an acre  
may soon be cleared, the turnips being gathered up  
six yards on each side of the rail. Two boys will  
move and lay down a hundred yards in a quarter of  
an hour.

It is much to be lamented that in several dis-  
tricts, where the public roads are attended to,

private roads should be neglected, yet they form as essential a part of the farm as the houses and fences, and, like them, should be made and repaired according to stipulations between the landlord and tenant. There is nothing for which the tenant can better afford to pay a percentage than for a good road through his farm. Every farmer, therefore, ought to make it a rule, completely to repair a certain extent of road each year, say from fifty to five hundred yards, in proportion to the extent of his possession; and a stipulation to that effect would be no improper clause in his lease. The roads, even on a large farm, would thus be almost imperceptibly gone over, and the value of the farm materially increased.

There are certain points in which the existing system of road management common in England differs from that which prevails in Scotland, but in both cases we have the same object in view in the question of road reform—namely, that all roads shall be maintained in a proper state of repair, and that this shall be effected through some other medium than that of tolls. The most obvious mode by which funds can be raised for this purpose is an assessment, regulated by a standard valuation. This principle has the merit of having been thoroughly tested, and found satisfactory. Not to speak of the statute-labour roads in Scotland, which are maintained by assessment, we find the principle carried out on a more extended scale in Ireland,

and with the best results. Until about eleven years ago the toll-bar system was in full operation in that part of the kingdom, but it finally came to an end in 1858. The counties are divided into baronies, and the Lord-Lieutenant appoints a surveyor or engineer for each county, while the grand juries—equivalent, in some measure, to the Commissioners of Supply in Scotch counties—appoint deputies as assistant inspectors, usually one for each barony, and also for the same area a collector of county rates, who is paid by poundage fees, and whose solvency is guaranteed by sufficient securities. These collectors return to the grand juries a list of the ratepayers who pay the largest amount in each barony, and the grand jury selects from the list a certain number to act with the magistrates as “associated ratepayers” at the following presenting session in each barony, previous to the ensuing assizes. All applications for works, including contracts for five or seven years, which is the general rule of practice, must be laid before these presenting sessions, where they are openly considered. If the works are wholly disapproved of by the majority of the associated ratepayers, the application is rejected; if approved of, wholly or in part, the surveyor is directed to prepare specifications and tenders. Sealed tenders are sent to the secretary of the grand jury, or delivered to the chairman of what is called an adjourned session preceding the next assizes. At this session the tenders are opened

by the chairman, who accepts the lowest tender. At the next assizes all the new works so presented and contracted for are laid before the grand jury for decision whether or not they shall be executed. If the grand jury reject the works there is no appeal. The secretary of the grand jury delivers to the clerk of the Crown a schedule of the works approved and tendered for. This schedule is read in open court by the clerk of the Crown, and the judge hears any objections in point of law which may be made against any of the presentments by any ratepayer, and decides the same. If an objection be urged upon a part, such as that a work is useless, a traverse is entered, a jury empanelled, and the matter tried at once, or adjourned, if the judge thinks proper, to the next assizes.

As "Martin Doyle" very truly remarks in an article on "Road Making in Ireland:"—"There can be no underhand jobbing, favouritism, or extravagant charges under the existing law. The grand jury possesses a salutary degree of control over the decisions at presenting sessions whether proposed works shall be executed or not; and no part of a county can now be neglected to the advantage of another, for every barony must have at least one juryman at the assizes to represent its interests; and while every barony contributes to the payment of certain charges in the county at large, the principal expenditure of any baronial rates is within its

own area, and one acting overseer suffices for the superintendence of all its roads."

The county assessment, or "cess," as it is termed, includes, besides the maintenance and construction of roads, other county charges, such as the salaries of county officers, court and sessions houses, jails, bridewells, lunatic asylums, public charities, payment of advances to Government, proportion of expense of constabulary force, &c., and is raised according to the Poor-law valuation. The amount varies, of course, in different counties, and it is somewhat difficult, without considerable calculation, to separate the proportion belonging to the maintenance and construction of roads. In the county of Limerick the total assessment at last spring assizes for the half-year varied from  $7\frac{1}{4}$ d. to  $10\frac{3}{4}$ d. per £1 in the different baronies, and in the county of Antrim the average annual rate for the last three years has been about 1s. 7d. per £1. In the county of Armagh the proportion of cess required last year to pay all charges connected with 1357 miles of roads was nearly  $8\frac{1}{4}$ d. per £1; and in the county of Kilkenny, while the cess for the present year is about 1s. 4d. per £1, the proportion required for roads is  $9\frac{3}{4}$ d. The annual assessment for all purposes in the county of Carlow is about 1s. 8d. per £1, but we cannot say what proportion of this belongs to the road department. In the county of Louth the cost of all public works last year was 1s.  $1\frac{1}{2}$ d. per £1 on the valuation, of which the pro-



portion chargeable against the maintenance and repairs of roads was  $11\frac{1}{4}$ d. per £1. There are 580 miles of road in the county repaired and maintained by presentment. In former times Louth was studded with turnpikes, and the addition made to the cost of repairs by the transfer of the turnpike trusts to the county was nearly one-fourth, but, notwithstanding this, the cess-payers appear gratified by the change. Louth is a narrow county, averaging only about 10 miles in width, and being intersected with the traffic from the interior to the coast, and the return traffic from the towns to the interior, and being also an agricultural county, the annual cost of repairs is considerably over the average. In Ireland the "cess," or cost of all grand jury presentments is borne by the occupier, the letting value of land, &c., being settled accordingly. Under this system the roads in Ireland, of all kinds, are maintained in excellent repair.

Whilst the Agent keeps a vigilant eye upon the surface of the soil, with a view to every possible improvement, he must not be unmindful of the riches which may lurk beneath. Any indication of the existence of coal, tin, lead, copper, or iron, white clay, or other earth adapted to manufacture, or quarries of stone and slate, ought to be immediately reported to the owner, that the matter may be investigated, and their value may be ascertained, by some person of experience. Proximity to the sea coast, or to navigable rivers or canals, will enhance the worth of discoveries of this kind,

and may afford the opportunity of letting land on building leases, the most certain mode of greatly raising the value of an estate. Moreover, the fitness of any part of an estate for the establishment of a manufactory or the building of a village, or of the coast for a fishery, is sure to be noticed by an intelligent and faithful Agent.

When estates are so situate as to be health-resorts on the sea-coast, Agents have a very special opportunity of greatly enhancing the value of the property by many general improvements, such as constructing roads, streets, and drainage, and ensuring ample water supply. Bad drainage and a foul smell will infallibly impel such as betake themselves to the sea-side in the direction of the railway station. Sewage and sea water make a very disagreeable mixture when close to dwellings or an esplanade.

The drainage of towns, whether inland or marine, is a difficult and disagreeable business. For some years indeed the sewage of inland towns was disposed of, with little trouble to the inhabitants, by transmitting it to their neighbours. Drains were carried, wherever practicable, into rivers, and those again, into larger rivers falling into the sea. Thus sewage was passed on from town to town, to the great relief and comfort of the dwellers in the interior of England; but sewage which was created upon the coast could go no further; and of this truth the dwellers on the sea-shore had long been

practically and painfully convinced. It is no doubt an easy thing to empty a sewer into the sea ; and if we could continue to believe in the purity of waters which are thus augmented every day with the offscourings of the earth, all would be well. But even if the nose rejects the evidence of pollution which is afforded by air and sea, the eyes can hardly refuse, when the tide recedes, to recognize the existence of one or more iron pipes crossing the beach ; nor can the mind altogether avoid contemplating the possibility that, if at low water one were to visit the mouths of these pipes, a dark fluid of offensive smell would be found issuing therefrom. The breeze which is wafted over those waves could hardly be considered pure ; the waves themselves would scarcely be selected as an emblem of cleanliness ; nor could the sands over which those waves have flowed be pronounced to be absolutely immaculate. It is true that the practice now complained of may boast of a venerable antiquity. The people washed themselves, says Homer, and cast their washings into the sea. It is to be remembered, however, that the Greeks did not go to the Troad to found a city, but to destroy one.

The difficulty which has been thus indicated can be dealt with only in two ways. The sewage may be carried out to sea, where there is a gradually shelving beach, by pipes laid down beyond low-water mark ; or it may be carried along shore to some point so remote from the dwellings of men

that no perceptible nuisance will be caused by discharging it into the sea. There is undoubtedly a third plan which has been much advocated of late years. One usually finds in the neighbourhood of a sea-side town tracts of barren sand which a copious infusion of sewage might easily convert into fertile and profitable fields. But such experiments, however interesting to the philosopher or the economist, are not likely to prove attractive to families seeking health and pleasure by the sea-side. There is, speaking generally, no plan suitable for the disposal of the sewage of a town aspiring to the character of a first-class watering-place, except that of constructing an outfall for its drainage at some point on the coast so far distant that neither tides nor currents can prevent its disappearing absolutely amid the mighty volume of ocean, and being no more seen or smelled by the community which desires to get rid of it. A plan of this character may be more or less expensive according to the configuration of the coast, but it can hardly fail to tax severely the resources of a town to which, nevertheless, the adoption of such a plan may be an essential condition of its prosperity. In the case of Eastbourne it was originally proposed to do the work cheaply and inefficiently, by constructing an outfall at less than a safe distance from the town. But under the advice of Mr. J. R. M'Clean, late President of the Institution of Civil Engineers, and by the assistance of the Duke of Devonshire,

who is the principal landowner of the district intended to be drained, the outfall was placed at a more remote and eminently advantageous point; and thus the drainage of Eastbourne offers an example of excellence in design and execution well deserving of study and imitation by other sea-side places which desire to compete with it for public favour. This work may be truly described as the first great effort that has been made to remove even the suspicion of the presence of sewage from waters in which visitors are invited to bathe, and upon the shore of which they are encouraged to lounge, flirt, read novels, smoke, and enjoy all the other pleasures of a sea-side holiday. It may seem invidious to disparage the arrangements which have been made at other marine towns; but it is evident that, however far the pipes at right angles to a line of coast may carry sewage into the sea, still, if there is a bay, the flood tide will bring it back upon the beach consecrated to bathing and other seaside amusements.

The carrying out of the design has occupied a little over two years, and cost £35,000. The works, perhaps, would never have been constructed but for the munificence of the Duke of Devonshire, who furnished £25,000 out of the £35,000 necessary for the completion of the enterprise.

Every farm tenant must feel, more or less, the powerful influence of the smiles or frowns of the Land Agent appointed over him; and it is an old saying, that a man sometimes fears his banker more



than he does his minister. Upon the strength and weight of these axioms, and without further comment, we must protest against the appointment and employment of Land Stewards, Land Agents, and factors for estates, or of managers of local banks, as agents for the sale of artificial manures. No sensible landowner can sanction it, or even wink at it. The proper cultivation of the land, and freedom in the use and choice of all appliances and means which the farmer may think most conducive to that end, are of the greatest national as well as individual importance; and any undue influence or pressure for orders, direct or indirect, brought to bear upon him in the choice and purchase of an article of such moment as artificial manure, may throw him back for seasons, and may be most damaging to his own as well as to his landlord's interest. We hope to see the subject taken up by the Press, and particularly by that portion of it which advocates the landed interests. The Press generally sounds the first tocsin of public alarm, and wakens up the sluggish intellect. We are sure that the farming community will agree that the question of good or bad manures, of an artificial kind, is a vital matter to them. Compulsory dealings in matters of this kind must, in the end, form a most prejudicial monopoly, highly savouring of the old "tommy and truck system" in its worst form, because the evil would become more permanently extensive.

The position of the Peruvian guano trade, as respects its sale in this and other countries, has been under the serious consideration of the Republic; and an Ordonnance has been issued for its future regulation, of which the following is a copy :—

*Article 1.*—The Government will henceforward be restricted from entering into any new contracts consigning guano, and also from continuing, by the system of advancements or any other means, those now legally in force.

*Article 2.*—Guano will be sold in Peru to each and every country which imports it. The sale will be by public auction. Notices will have to be given in the papers for six months in advance as to the quantity consumed annually, or, at the most, every two years.

*Article 3.*—The Government will proceed to make contracts for the sale of guano with the actual consignees for the quantity consumed in their respective markets.

*Article 4.*—These contracts of sale will be immediately submitted to the consideration of Congress, without whose approbation they will be void of all legal effect.

*Article 5.*—The Government will have to see that all the obligations contracted by the nation in reference to the foreign debt are strictly fulfilled.

*Article 6.*—If the Government should not be able to raise funds in accordance with the means indicated in Article 3, they will be authorized to

borrow a sum not exceeding 4,000,000 soles, making the best contracts they can, and submitting the same to the approbation of Congress.

By Article 1 it will be observed that all existing contracts are to be respected.

It will be remembered that the contract for the supply of the United Kingdom was with a society of merchants in Peru, and was for ten years from 1863, so that it now has about six years to run. Messrs. Thomson, Bonar, & Co. are the consignee agents for this local company; and the loan to enable the Government to carry out their views was obtained from capitalists in London. For due payment of the interest, the proceeds of the guano were hypothecated.

By the same Article the Government are to decline obtaining advances on consignments under the old contract. This, no doubt, has its origin in the results of the high rate of interest which they had to pay last year during the panic. The accumulations of interest and charges on guano held in England, at the rates of interest prevailing in 1865 and 1866, must have told to an extent on the proceeds as to lead the Congress to conclude, in the interests of the State, that money had better be raised on *State* loans and not on advances on guano, subject to the highest rate of interest which is invariably charged on advances on produce, together with various other heavy charges, &c.

By Article 2 we presume they intend to limit

their yearly exports to each country to the actual estimated consumption : the evident intention being to save the accumulating and compound charges for interest, warehouse rents, &c.

Article 3 enables the Government to convert their consignment accounts into sale accounts with existing consignees for their respective markets. This is an attempt to get the consignees to take upon themselves the responsibility of advancing *minimum proceeds*, and will sharpen the latter to avoid delays, or holding of stocks in excess of the wants of their markets. To make a certain business they will rather *under* than *over* supply markets, if they undertake the business in the capacity of importing merchants.

Article 4 requires all such sales to be submitted to Congress for approbation. This will hold the sales in suspense, and possibly open the door to the corruption of individual members of Congress to legalize proposed contracts for purchase of guano.

Article 5 places upon the Peruvian Government a responsibility incompatible with what seems to be the intention of Articles 1 and 2.

Article 6, however, seems intended to act in aid, by authorizing a State loan to meet accruing charges until the trade can be converted into *sales*, at a price per ton to be fixed in Peru, as per Article 3.

What the ultimate effect of the new regulations will be we can hardly now determine. There are

elements, however, which we can imagine will operate very soon.

The land of England, says a surveyor, may be divided into three classes, according to its condition :—

1. Land remaining of the same quality, consequently of the same intrinsic value.

2. Land deteriorating and declining in intrinsic value.

3. Land improving and increasing in intrinsic value.

It may perhaps be well to define the term intrinsic value.

“ The worth of a thing  
Is what it will bring.”

But this worth is not its intrinsic value; this must be judged by the quantity and quality of its produce. An estate may be of less intrinsic value, and yet let for more rent. If an estate continues to yield for a number of years the same amount of produce and of like quality, it remains of the same intrinsic value. If it has been farmed so as to give a less quantity of produce, it has decreased in intrinsic value. On the contrary, if it has been cultivated so that it yields an increase, it has evidently increased in intrinsic value.

There are other causes which affect the price of land independent of increase or decrease in its quality; but these will always be found to produce



their full effects at every sale and every letting. To show that such is the case, it may be well to mention a cause which increases the price of land, and to place its effects in contrast with those made by alteration in its quality. The decrease in the value of money has increased the price of landed produce; so much so, that land which has for the last twenty years been gradually decreasing in quality still lets for more rent; nevertheless, the quality of the land has made itself felt.

To show this, let us suppose that three estates, belonging to three proprietors, A, B, C, were at the last letting considered of equal value, and accordingly let for the same rent—say £200 each; that they are again to be let; and that the decline in the value of money has raised the price of produce fifteen per cent. The estate belonging to A has been farmed so that its productive quality remains unaltered; if the price of produce had remained unchanged it would now let for the same, but this has increased £15 per cent., consequently it now lets for £230. The estate belonging to B has been badly managed, and decreased £10 per cent. in intrinsic value; had the price of produce remained stationary it would now let for £180; but that has increased £15 per cent., so it now brings nearly £210. C's estate has been well farmed, its productions are increased £10 per cent.; it would from this cause only now let for £220, but the increased value of its produce, £15 per cent., causes it to be

let for £256. A's farm has let for £15 per cent. more—not that its productions are increased, but because they bring a higher price, and the advance is due to the decrease in the value of money, not the quality of his land. B's farm has only let for £5 per cent. more, although the price of produce has risen 15. Why? The effects of bad farming show themselves by deducting 10 from the 15 per cent., so that the increase is only £5 per cent., which is the difference between the loss in the quality of the land, and the advance caused by the alteration in the value of money. Here we have an estate deteriorating in quality, and of less intrinsic value, let for more rent. The increase of rent on C's estate is £25 per cent., 10 from being well cultivated, and 15 from the increase in the price of produce. In each of these cases the quality of the land shows its effects; remaining unchanged on A's estate, he only gets the increase of rent caused by the alteration in the price of produce. B feels the full effects of bad management by being compelled to deduct 10 per cent. from the 15 he otherwise would have realized. C experiences the pleasing result of good cultivation, by receiving 15 per cent., and also an extra £10 per cent. caused by the improved quality of his land.

No proprietor, when he lets an estate, should be satisfied because he receives an increase of rent; he should examine into the effects produced on the estate by the manner in which it had been culti-

vated during the last term, and ascertain whether the increase arises from that or from some other source.

It may be thought that, owing to the spread of agricultural science, the exertions making by various individuals, and the stimulus given to agriculture, only a small quantity of land could be found fit to be placed in the first class—viz., land remaining of the same quality. There is, however, enough to entitle it to a separate division. In this class things may be said to go on in the old-fashioned way, the sons treading in their father's steps; many think the old methods best, and trouble themselves but little concerning new things, generally looking with suspicion on any alteration in farming, and prophesying ill of those who follow it.

In the rich agricultural districts of England, and in the Lowlands of Scotland, there is indeed something amounting nearly, if not entirely, to a regulation of the value of farms by free and full competition. Farming is there very nearly reduced to a business, in which a man with money applies his capital to manufacturing produce out of land. There are always men looking out for farms, who are possessed of the requisite capital. The farms are large enough to become the subject, not merely of local, but of general competition. On the other hand, a man seeking a farm is in a position to take a wide range of choice. Every English tenant of this class feels himself perfectly free to resist every

unreasonable demand of the landlord. If terms such as he is willing to accept are not adjusted, he can get a farm elsewhere—he can afford to wait until one offers—or at the worst he can embark his capital in some other occupation. In such a state of things, there are a number of landlords having farms to let, and a number of farmers always ready to take them. The person offering the farm puts it into the condition in which alone it would find a tenant. The person taking it comes with money to invest in the business of the farm.

When farms are to be let, or when it may be deemed expedient to raise rents, the best method is to have each farm valued by a competent valuator, who will fix the rent at a fair sum. This being done, the Agent should advertize the farms in the country papers of most extensive circulation, and also in several of the London papers. Such advertisements ought never to be confined to the newspapers of the county in which the farms are situated; because ten to one they are only seen by a few out of that county, while there may be many farmers in distant parts who would be glad either of a change of situation for themselves, or of a settlement for some branch of their family. Men of means also in London, attached to rural affairs, may be tempted by an advertisement. Advertisements should be clearly written, describing the properties of a farm and everything connected with it, but never in bombastic style, a species of clap-trap which usually

catches birds not worth the having. All the advantages of the farm ought to be set forth in forcible terms, but without exaggeration. This is the right and the only way to attract a good tenant.

The letting of farms by public auction is altogether reprehensible, as there is a great risk of getting insufficient tenants, mere adventurers, probably, whose effects, in a year or two, it may be necessary to secure as an indemnity for rent.

Some one has written with reference to the qualification of a farmer sentiments in which we entirely concur, that in addition to the physical qualities of a good constitution, habits of early rising, activity, and temperance, the man who aspires to be a tenant farmer or gentleman's bailiff should combine the moral qualities of good temper, conciliatory manner, firmness of purpose, and determination to carry out through difficulties and discouragements whatever he has deliberately undertaken. His intellectual acquirements should embrace a competent knowledge of all the various works performed on a farm, their quality and value. He should be a sufficient judge of stock and the different points of excellence of the various breeds, to be able to choose what will suit his land, and to buy and sell at the proper price in the market. He should have an experienced eye to tell him which are thriving and which are stationary in condition. He should be chemist enough to judge of the value of artificial foods and artificial



manures, doctor enough to remedy slight diseases or injuries, mechanician enough to set to work and keep at work the machinery and implements, surveyor enough to measure lands and to set out drainage works or buildings, ever ready in his resources, provident of the future, mindful of past experience—a combination of qualities which would raise an officer to the rank of general, a barrister to the post of attorney-general. Yet how necessary are each of these acquirements! How much does the absence of any one of them retard and impede success! They may be comprised shortly in the two qualities—perseverance and judgment. The necessary perseverance a young man may impose on himself. The necessary judgment can only be acquired by a thorough acquaintance with the experience of others compared with his own.

One of the many important duties of the Agent is to give notice to the owner of the land of every circumstance materially affecting his estate, either immediately or in prospect, and especially of the expediency of raising his rents. Although the competition amongst the tenants may, at times, be a just criterion for ascertaining the fair rent, yet an Agent ought to have some rule for judging of the positive value of the land, which he must obtain by a careful survey, and a close comparison with other lands, the rents of which have been raised. This will enable him to fix an adequate price, and will secure him, both from the danger of refusing a fair

offer, and from that which may arise from combination, or the accidental want of tenders. In these times of extreme taxation and excessive enhancement in price of all the necessities and luxuries of life, it is hardly requisite to counsel landlords against a continuance of the practice of their forefathers, who held it beneath their dignity to raise their rents—a piece of generosity savouring rather of ostentation than beneficence; and which had, but too often, the effect of encouraging indolence, and checking increased production, hence, becoming a real loss to all parties interested, not excepting the tenant himself. Moreover, the principle is altogether wrong, as the deterioration in the value of the precious metals requires an advance in the price of land as of other commodities, to keep it equal to its original rent.

An advance of rent having taken place upon the farm of a deserving tenant, who, from having been bred in the old methods of husbandry, may be ignorant of those modern improvements from which he must, in a great measure, seek his indemnification for such advance, it becomes the duty of the Agent to tender advice to the tenant, and to assure him of the assistance of the proprietor in forwarding sound views. Very great judgment is required in raising rent where improvements have been carried out by the occupant himself, since, if the landlord take more than his fair share, the tenant will justly become dissatisfied and unwilling, indeed unable,

to proceed in his meritorious career. In such a case, both honour and sound policy require that a weighty turn of the scale be given in favour of the tenant. Whilst we have said so much with reference to advance of rent, we must not omit to observe, upon the other hand, that, when an honest and industrious tenant is too heavily rented, the Agent should at once advise a reduction. For not only must the land suffer under such circumstances from want of due culture, but it is surely beneath the dignity of the owner of the soil to profit by the unrequited labour of a poor tenant.

We could adduce many noble examples of the equitable adjustment of rents, such as reflect lustre upon the distinguished aristocracy of our country—the splendid body-guard of royalty. Amongst the benevolent landowners who have evinced this high-hearted liberality, the noblest concomitant of lofty lineage, we may instance the late lamented Earl Fitzwilliam, who announced to his tenants at the rent audit in 1850 his intention to make an equitable adjustment of their rents in accordance with the circumstances of the times. His Lordship stated, with true patriarchal feeling, that, in consequence of the alteration in the laws regarding farm produce, he did not think that the basis on which his rents had been hitherto fixed would be a fair basis for the future; and that he intended, therefore, that they should be readjusted. This was combining justice with generosity, and afforded an

illustrious example of the beneficial administration of property. Of all the great names among the aristocracy, not one, perhaps, shines with so pure a lustre as that of the late Earl Fitzwilliam. Not a day of his long career has passed unmarked by some act of justice, patriotism, or bounty;—not one in which he has not made the most generous and enlightened use of his vast fortune. Let us earnestly hope that the hearts of all who are entrusted with it may be in like manner guided to acts of wise liberality. The upright administration of property is the true test of a nation's prosperity, and great, indeed, is the responsibility which belongs to the possessors of the soil. As they mete to others, so shall it be measured unto themselves.

“No scene so blest in virtue's eyes  
As when the man of virtue dies;  
The good man dead, this lesson gives,  
It is another angel lives—  
A star has set for ever here,  
To glitter in a brighter sphere.”

Amongst other examples of great generosity, we may state that Lord Crewe has presented his tenants with £5 for each cow lost or destroyed by reasons of the plague, in addition to which a further considerable sum will be divisible among them, accruing from the county rate, Government compensation, and other sources, which, with the tenants' concurrence, will all be thrown into a general fund. His

Lordship has also deferred the Michaelmas rent day to December, when only 50 per cent. of the half-year's rent, which was really due last Lady-day, will be taken. Moreover, a number of the tenants on the estates of the Earl of Kellie suffered severely by the visitation of the cattle plague, and his Lordship has allowed all the tenant-farmers on his estates abatements equal to one-half of the value of the cattle lost by them, thus continuing and increasing the good and kindly feeling between landlord and tenant that has always existed on these estates.

Whilst it is, then, very pleasing to record such kindnesses by these noble lords, there are, no doubt, many others who have acted in a similar spirit of liberality, although their good actions have not come to general public notice.

In the present state of society, it is not to be expected that owners of large estates can reside much on their possessions. The more they can find it possible to do so, however, the better for their properties and tenants. The fact is, that a proprietor who has been long non-resident never takes the same interest in his affairs as if he were much at home, nor does he care to execute permanent improvements. The consequence is the most melancholy sight that landed property presents to the eye. What more saddening to behold, than an estate on which a wealthy proprietor once resided falling rapidly into ruin. Through the shattered roof the water finds its way into every room and passage,



rotting the walls and floors ; from the former hang in strips the paper or drapery, which wave in the wind, that finds its way through the broken windows, and the latter crumbles beneath the feet : the gardens and pleasure-grounds overgrown with weeds, briars, thorns, &c. ; fallen trees lying about rotting, fences broken down ; in fact, everything looks dreary and desolate. No one can fail of being struck with the scene ; and when a calculation is made of the property lost in a few years through carelessness, the calculator becomes astonished, and exclaims, “ Can this be correct ? ” It appears as if fate has decreed that as soon as a gentleman’s country-house becomes uninhabited it must decay ; and so peremptory are her laws, that not one in ten escapes. Many a noble mansion falls into ruin from the want of a few pounds being annually expended to keep the water and wind out, and to have fires occasionally lighted in the different apartments. Moreover, if the selection of tenants, and other important estate matters are left entirely to the Agent, the result, should he be an unprincipled person, or lack the qualifications necessary for the office, may easily be conceived. Experience has afforded incontrovertible proof that many estate managers, who under resident proprietors, would have continued to be every way fitted for their duties, have become, when left for a long time to themselves, little else than despots. Not having been accustomed from their earliest years to posi-

tions of authority, their unrestricted power turns their heads, and they gradually become tyrannical. Indeed, were we to select thirty properties notoriously burdened with idle, ill-behaved persons and paupers, we should find that three-fourths of them were owned by absentee landlords. If we turn to the Highlands of Scotland, we find that the great majority of the evictions which have so sadly depopulated so many fine glens, and brought eternal disgrace on not a few Highland proprietors, have originated in the want of sympathy in absentee owners.

The venerable Justice Talfourd's last noble sentiments were: "And, if I were to be asked what is the great want of society, I would say, in one word, the want is, the want of sympathy." Because Agents, forsooth! find that they can, with less trouble, collect rents from a few large tenants than from a number of small ones, they recommend wholesale evictions. Truly, most cruel and short-sighted are the acts committed by some Lowland Agents of Highland estates. Neither understanding nor respecting the real manhood and sterling qualities of the Highland character, they heartlessly wage a war of extermination against the poor and helpless. And this is, in nine cases out of ten, the result of absenteeism. It should be the aim of Agents, as it certainly is their duty, to sympathize with the unfortunate; and, while taking care that the interests of their employers are attended to,

they ought, from the highest motives, to be merciful as well as just.

We delight to think of the people of mountainous regions; we please our imaginations with their picturesque and quiet abodes; with their peaceful secluded lives, striking and unvarying costumes, and primitive manners. We involuntarily give to the mountaineer heroic and elevated qualities. He lives amongst noble objects, and must imbibe some of their nobility; he lives amongst the elements of poetry, and must be poetical; he lives where his fellow-beings are far, far separated from their kind, and surrounded by the sternness and the perils of savage nature; his social affections must therefore be proportionally concentrated, his home ties lively and strong; but more than all, he lives within the barriers, the strongholds, the very last refuge which Nature herself has reared to keep liberty alive in the earth, to preserve to man his highest hopes, his noblest emotions, his dearest treasures, his faith, freedom, hearth, and home.

The true Highlander has much the character of the Swiss, who are so deeply attached to their country. Even the young men who enter into foreign service, as soldiers, or emigrate to other lands, scarcely ever fail to return as soon as they have put together sufficient to enable them to live at home. In very many cases, the desire of seeing their native country has been so strong, that when prevented from doing so, they have fallen sick, and

even died of grief. This is a fact so well known, that it was strictly forbidden in the French armies, into which Swiss regiments were incorporated, to play certain Swiss music, in consequence of the fatal effect which this music was found to produce upon the soldiers of that nation. The air which had this extraordinary effect on the Swiss soldiers was called the *Ranz des Vaches*; or *Cow-Call*. It was nothing more than a simple song, which the cow-herds in Switzerland are accustomed to sing as they drive their cows to pasture; and its fatal effect depended entirely on the strong recollections which it excited in the minds of the Swiss, of the happiness of their childhood. They truly have the *amor patriæ* strongly impressed, so, too, have the Scotch! Our beloved Sovereign records her impression in her estimable diary just published. Year by year she seems to become more attached to the Highlands, more eager to return to them, more loth to leave them. It seems as if she could take up the burden of the Scotch song, "My heart's in the Highlands, my heart is not here." On one occasion she writes:—

"At a quarter past 8 o'clock we started, and were very, very sorry to leave Blair and the dear Highlands! Every little trifle and every spot I had become attached to; our life of quiet and liberty, everything was so pleasant, and all the Highlanders and people who went with us I had got to like so much. Oh! the dear hills, it made me very sad to leave them behind!"

And then on reaching England she writes with that passionate feeling which mountainous countries are apt to inspire:—

“The English coast appeared terribly flat. Lord Aberdeen was quite touched when I told him I was so attached to the dear, dear Highlands, and missed the fine hills so much. There is a great peculiarity about the Highlands and Highlanders; and they are such a chivalrous, fine, active people. Our stay among them was so delightful. Independently of the beautiful scenery, there was a quiet, a retirement, a wildness, a liberty, and a solitude that had such a charm to us.”

As a Highlander, I say, that if it be possible to deepen the national sentiment of loyalty which the Queen has already inspired in my native country, surely these words must achieve it.

One very difficult class of tenants to manage are those who are destitute of those high moral principles which are the distinguishing features of the British farmer. On almost every large estate there are men who are certain to take advantage of an Agent if they at all can. Their chief aim is to cavil about matters of little or no importance, till they succeed in setting an action at law on foot. Again, they complain of unfulfilled agreements, and injuries to crops, &c., that they may have a pretext for withholding their rents. To deal successfully with these men, an Agent requires to be armed at all points—first, on entering into agreements which can have



only one interpretation; and then in seeing that these agreements are strictly adhered to. It is with men of this disposition that the Agent requires to have a comprehensive knowledge of human nature. Without a kind of intuitive discrimination of character he will be no match for them, and they consequently involve him and his employer in endless disputes, causing them both very great annoyance. The sooner, therefore, that such fellows are weeded out of a property the better, even though they may possess considerable means.

There are two other classes of men found occupying lands—the one poor, and paying exorbitantly high rents, who are unable from lack of capital to adopt the improved systems of agriculture, and are thus compelled to get as much as possible from the land at little expense, to enable them to pay the rent and other out-goings. Here it may be well to state that the rates, tithes, &c., are regulated in a great number of parishes by the amount of rent paid. Thus the occupants of these lands doubly suffer; the rent is too much for them to pay with fair out-goings, but when they are obliged to pay rates, &c., in proportion to that rent, much above what they fairly ought, the amount becomes extremely burdensome, and the only way they have to escape bankruptcy is to impoverish the land. Let not the proprietors suppose that they do not suffer because the tenants pay these out-goings. When an estate has paid high tithes, rates, &c., for a

long period, it is very difficult to get them reduced, although they may be much beyond the average of the rest of the parish; in fact, they may almost be considered fixed sums, and when these estates are to be let, every shilling of such expenses is calculated by the taker. Who then pays them? most certainly the proprietor.

The other class of men possess capital, which they have accumulated or increased by taking estates in fair order, and then impoverishing them. They readily offer high rents as a bait to the proprietor, calculating that they shall be able to repay themselves handsomely during the term, which is invariably short. Being migratory in their habits, they look out about the end of their terms for another farm—one that is in tolerable order. This they make every exertion to get, and when successful, they proceed as before, leaving all the estates they occupy in a “farmer-like manner.” Few would believe that proprietors are so foolish as to let to such parties; the fact is, they do not know them. Many years elapse between the letting of estates, and circumstances are forgotten; and the character of a farmer coming from a distance is but seldom—too seldom—inquired into: and, should it be, the tempting offer of twenty, thirty, or one hundred pounds a-year increase of rent generally covers all defects, and the owner of the estate thinks himself a great gainer; but were he to set down as lost £100 for every £5 he receives above a fair rent with a

good tenant, he would be nearer the truth, and his calculations would then be too low.

Many proprietors and agents object to tenants reletting their farms, or disposing of their leases. The objection appears to be grounded on mere prejudice. Not only is there no probable prospect of injury or loss to the proprietor by allowing a free disposal of leases, but, on the contrary, much possible benefit. As to security for the rent, that is palpably increased, since the original tenant is liable to the end of his term. The advantages, too, of this liberty seem communicable in an equal degree to the landlord, supposing the land to have been let at its full worth; for the farm may pass from the hands of an incapable into those of an improving tenant. This privilege may farther act as a spur to agricultural improvement, and speculators may be induced to hire on lease tracts of waste land, with the view of putting them under culture, so as to dispose of the lease to greater advantage. On a tenant quitting a farm at the expiration of his lease, the Agent ought to make certain that he has duly performed all its conditions, and especially that he has treated his land, during his last years, in a fair and liberal way, such as becomes a reputable tenant who has a character to preserve with his new landlord.

The law, as at present in force, respecting fixtures, is a great hindrance to agricultural progress. If a tenant is under the necessity of erecting buildings

on his farm, to furnish the accommodation which the landlord ought to have provided for him, he is prevented from removing the materials at the end of the lease. The only exception to this rule is in respect to erections consisting of wood, put together by screw-nails, or in cases where the farmer has a special agreement with the landlord. When stones, bricks, and lime are used, or when nails are hammer-driven, the building is a fixture in law, and becomes the property of the owner of the land. Every landlord ought to provide suitable buildings for a tenant at the beginning of a lease. If he has agreed to do this, but manages to put off the farmer with make-shift repairs, which the latter inconsiderately accepts of, as likely to serve his purpose during the lease, then it is surely a hard case that the tenant, finding it indispensable to the accommodation of his stock to add to or improve upon the houses put into his possession in so imperfect a condition, should be prevented from removing the buildings erected with his money, or from claiming compensation for part of the outlay. It is the duty of the landlord, in such a case as this—and even in cases where, by reason of unexpected occurrences, good steadings have been injured—to bear a principal share of the expense of repairing them, or otherwise consent to repay the tenant, at the termination of his lease, a proportion of his expenditure.

The houses suitable for an unimproved farm may, under an improving tenant, be found in a few

years altogether unsuitable for the consumption of a largely increased produce. Surely it is not to be expected, that in that event the tenant should erect necessary additional buildings, and yet be prevented from removing any part thereof on his leaving the holding! To say that a farmer, who is imprudent enough to put up expensive houses, whether they are needed or not, or whether he has obtained the proprietor's sanction or not, is to be repaid his outlay at the end of his hiring term, is completely opposed to common sense. But when a tenant does require additional farm-stead accommodation to that which he finds it possible to obtain from the proprietor, then, in his being compelled, for his own interest, to expend his capital in building operations without there being the slightest chance of repayment, we have a real case of hardship and injustice. As the law permits tenants to build, but not pull down, some few designing landowners are guilty of the miserable trick of leaving the farmer to perform necessary repairs, that they may thereby get their steadings put into tolerably good order at no expense. If the tenants complain of this treatment, and threaten to put the validity of their agreements to the test, they are sure to give serious offence. Fortunately there are not many landed proprietors of this kind; but there are a few; and both to keep *them* right, and to preserve that good understanding which ought to exist between landlords of straightforward dispositions and their



tenants, it is most desirable, for the true interests of agriculture, that clearly defined rules should be laid down in respect to house erections at the beginning of every lease. If the proprietor cannot provide suitable farm buildings, and expects the tenant to do it for him, then he ought to let his land at a lower rate than he would need to do otherwise.

Were the law in regard to fixtures modified, an immense amount would be done to promote agricultural progress. While the general rule—that the principal farm buildings should be provided by the landlord—would remain as at present, tenants would have no objections to put up, at their own cost, the less expensive buildings. Whenever they found it advisable to erect some small out-house, or a few additional cattle-feeding boxes, they would do so at once, knowing that at the end of their occupancy they might remove any of the materials worth removing. Nor would landed proprietors suffer by this being the practice. At present, tenants are extremely reluctant to put up buildings at their own expense, and will rather suffer a considerable loss than do it. In the other case, however, they would willingly do much in this way, and the landlord would of necessity be a joint sharer in the advantages.

We give the following legal views from Mr. Holdsworth's admirable little *Treatise on the Law of Landlord and Tenant*:—

Rent is a compensation or return either in money or other articles yielded or paid at fixed periods, and to a certain amount out of the profits and in respect of the occupation of houses and lands by the tenant thereof.

Formal and technical words are generally employed in the reservation of rent in leases and agreements, but there is no magic in these; any expressions declaratory of an intention that rent shall be payable is sufficient. It is essential, however, to constitute a rent for which distress may be made, that it should be reserved at a sum certain, or that means should be given whereby it may be reduced to a certainty; and also that it should be made payable at fixed times. Thus where a marl pit and brick mine were let, and the tenant agreed to pay so much a quarter for every yard of marl that he might get, and also so much for every 1000 bricks that he might make, this was held sufficiently certain. If a rent of so much “per annum,” or an “annual rent” of so much, is reserved (nothing being said about the time or times of payment), it will be payable once a year, on the anniversary of the commencement of tenancy. But where a rent was reserved “*after the rate of £18 per annum,*” this was held too indefinite both as to amount and time of payment. It is usual to make the rent payable either quarterly or half-yearly on all or two (specified) usual quarter-days, viz., the 25th March, 24th June, 29th September, 25th December.

Rent must be reserved to the lessor himself, not to a third party. However, where there is a reservation to a stranger, either in a deed or written agreement, although the sum reserved is not a rent properly so called, and *cannot be distrained for*, it may be recovered by an action on the contract. After the death of the original landlord or lessor, the rent will be payable to his heir-at-law if he had the fee simple; but to his executors, if he had only a lease. Rents of whatever kind—including rent-charges, fee-farm rents, and chief rents—are now recoverable by distress. Whatever covenants or provisions a lease or agreement may contain, the tenant incurs no liability to pay rent until he has been put into possession or has been tendered and afforded the opportunity of taking possession of the demised premises.

The landlord is not entitled to distrain until he or his Agent has demanded his rent on the premises, which he is not entitled to do until after midnight of the day on which it is made payable by the lease or agreement. But it must be observed that a demand made at the time of the distress being put in is sufficient, if that is after the day on which the rent is payable. It is not necessary that any demand should be made upon tenants of the Crown. They must pay their rent into the Exchequer on the proper day. Should the lease, as is generally the case, contain a proviso enabling the landlord to re-enter and recover possession if the rent is not

paid on a specified day, then on that day (according to the language of the proviso) the landlord must demand, or the tenant be prepared, to tender such rent on the premises before *sunset*. A tender must always be of coin or Bank of England notes. If there is in the lease a *covenant* for the payment of the rent at a fixed day, then if no particular place for the payment is mentioned, it is the duty of the covenantor (the tenant) to seek out the person to whom the rent is to be paid, and to pay, or tender it upon the appointed day. If this is not done the landlord may forthwith bring an action for the rent.

When the rent is paid in cash, the payment must be made in accordance with, and is subject to, the ordinary rules which prevail between debtor and creditor. It may be made either to the landlord or to his authorized Agent. And if the landlord have once authorized the tenant to pay his Agent, he cannot, by any subsequent revocation of that authority, invalidate any payment of rent made by the tenant to the Agent before the former has notice of such revocation. A remittance by post would be a sufficient and conclusive payment, whether it came to the landlord's hands or not, if sanctioned expressly by the landlord in that particular instance, or impliedly by the previous usage of the parties. And the tenant would have a right to tender for signature, a receipt which, if the rent amounted to £2 or upwards, must bear a penny stamp.

Where, however, a bond, bill of exchange, or promissory note, is given and accepted in payment of rent, the effect is very different from what it would be in ordinary cases. If, in regard to a simple contract debt—as, for instance, for goods sold and delivered—the creditor, instead of requiring immediate payment of a debt due to him, accepts a bill of exchange or promissory note, payable at a future day, his right to sue for the original debt is suspended until the bill or note is due, and then revives if the bill or note is unpaid. Rent, however, being considered a debt of a higher nature than even those due upon instruments under seal, and therefore in a still greater degree than bills and notes, the right to enforce it cannot be suspended by them. And hence, although a landlord may take a security by deed, or a bill or note payable at six months' date, that will not interfere with his right to distrain next day if he please.

If a tenant, in order to protect himself, pay charges which are, in fact, due from his landlord, but which are fixed upon the premises he holds, and may be distrained for there, he can, in settling with his landlord, claim to have such payments taken as on account of, and in deduction of his rent, and may decline to pay any rent until he is fully reimbursed. Amongst such payments are ground-rents, rent due from the immediate to a superior landlord, when the tenant actually in possession is only an under-lessee, land tax, landlord's income and



property tax (even if accruing during the time of a previous tenant), tithe rent-charge, and any charge for compensation of manorial rights. The tenant, however, must be careful to deduct or set off these payments against the next rent that becomes due after they are made. This may, perhaps, be the most convenient place to mention, that rent paid by a bankrupt, after the act of bankruptcy, in order to avoid a distress, is a protected payment, and cannot be recovered by the assignees.

It sometimes happens that a person, who has a mere life estate in lands, grants a lease for years. Except in the case of farms and lands let for cultivation, such a lease determines upon the death of the lessor; but his executors are entitled to recover a portion of the annual rent reserved, in proportion to the time which elapsed from the last payment of rent till his death. The tenant of a farm is, under a recent statute, empowered to retain possession until the expiration of the current year of his tenancy; and while the executors of the last landlord take the rent up to the day of his death, the succeeding landlord takes for the residue of the tenant's occupancy. A similar apportionment is made when a lessee, for a term of years determinable on the falling in of lives, makes an underlease for a term of years certain, which is still subsisting at the expiration of the lease on which it is dependent.

When a portion of lands or premises is taken

under an Act of Parliament for any public undertaking, it is provided by the Lands Clauses Consolidation Act (8 and 9 Vict., c. 18, s. 119) that, if the parties disagree, two justices may apportion the rent and fix the amount to be paid by the tenant for the part of his holding which is left to him.

If a tenant be evicted from any part of the demised premises by the landlord, or any one claiming through him, the whole rent will be immediately suspended, and nothing will be payable for the interval that elapsed since the last day (quarter-day or otherwise) on which rent was payable. But if the tenant be evicted from a part only of his land by one rightfully claiming by title paramount to or against his landlord, the rent will be apportioned, and so much only as may be considered fairly applicable to the part in question will be suspended. But a mere entry by the landlord, if permitted by a covenant, and even a trespass by him, or a trespass by a stranger, will not suspend the rent. In the two latter cases the tenant will, of course, have his remedy by action of trespass against the wrong-doer.

A tenant from year to year, or a lessee who has covenanted without qualification to pay rent during his term, will not be relieved from liability if the house be wholly destroyed by fire. The same liability has been held to continue in the case of a tenant from year to year of a second floor, occupied

under a parol agreement. And the occupant of furnished lodgings, let quarterly, has been held liable to pay rent, at all events up to the time of the fire. Of course a tenant from year to year may relieve himself by giving a proper notice to quit ; but a lessee for a term certain, with a general covenant, must pay during the remainder of his term. Even if he have covenanted to pay rent, and also to repair except in the case of the premises being burnt down, and the landlord refuses to rebuild after notice, this will make no difference. He ought to protect himself by an express proviso in his lease for the suspension or abatement of rent in such a case.

A lessee under a deed containing the usual covenant on his part to pay rent, and a tenant from year to year under an agreement, may both, in the absence of any stipulation to the contrary in such deed or agreement, assign their interests thereunder. But unless the first tenant's interest has been surrendered up to the landlord, and accepted by him, such first or original tenant will still continue liable for rent, notwithstanding the assignment. A tenant from year to year who wishes to get rid of his holding, and does not seek to gain a profit rent on the re-letting, will therefore find it best to make an arrangement with his landlord, by which the new tenant should be accepted in his place, and undertake his responsibilities. This arrangement should always be carried out in writing, as we shall

show in a subsequent chapter, when we come to treat of the manner in which tenancies may be determined. The assignee of a tenant is, in any case, only liable for rent while in possession of the premises.

A tenant will remain liable for rent unless at a time when he is entitled to do so he deliver up complete possession of the premises; or (where there is no covenant) the landlord accept another in his stead; or, after the tenant has abandoned the premises, the landlord let them again. In the last case, however, the former tenant will be liable for rent up to the time of such letting.

At the expiration of a tenancy, or its determination by notice to quit, the tenant must peaceably deliver up to the landlord the premises which had been let or leased to him. If he do not, his full responsibilities as tenant will continue; measures may be taken for his expulsion; and he will also be liable—as a penalty for holding over—to the payment of double value or double rent, so long as he continues in possession.

By the 4th Geo. II. c. 28, s. 1, it is enacted, that if any tenant or tenants for lives or years, or any person or persons coming in under or in collusion with them, hold over any lands, tenements, or hereditaments, after the determination of their estates, and after demand made, and *notice in writing* given for the delivery of the possession thereof *by the landlord* or the person having the

reversion or remainder therein, or the agent thereunto lawfully authorized, such tenant or tenants so holding over shall pay to the person so kept out of possession, at the rate of double the yearly value of the lands, tenements, or hereditaments so detained, for so long a time as the same are detained.

This Act, as it will be seen, applies only where notice to quit is given by the landlord. Now the regular and ordinary notice to quit will, in the case of a tenancy from year to year, operate as a notice and demand under this Act. But a notice is requisite to enable the landlord to avail himself of the Act, even where the tenant holds for a term of years. Such notice may be given at any time either before or after the end of the term (provided that the landlord has not, by receipt of rent, or otherwise, recognized a new tenancy from year to year). In the first case it will operate (in case there is any holding over) directly the term expires; in the second, from the time it is served on the tenant.

The Act does not apply to tenancies for a shorter term than from year to year; nor to instances in which the tenant retains possession under a fair claim of right. The double value cannot be recovered by distress, but it may by an action in the superior, or (if the amount claimed be not too large) in the county courts. The tenant cannot deprive the latter courts from jurisdiction by merely alleging that he has some claim to the premises, if



it can be proved that he has admitted that he was tenant at the time the holding over commenced.

Another statute applies where the tenant himself gives notice and then holds over. By the 11th Geo. II. c. 19, s. 18, it is enacted, that in case any tenant or tenants shall give notice of his or their intention to quit the premises, and shall not accordingly deliver up the possession thereof at the time in such notice contained, then the said tenants or tenant, his or their executors or administrators, shall from thenceforth pay to the landlord *double the rent* or sum which he, she, or they should otherwise have paid. This statute only applies to cases where a tenant has, from the nature of his holding, the power to give a notice to quit, and where he has, in fact, given a *valid* notice. It does not, like the 4 Geo. II. c. 28, render a notice *in writing* necessary. And also, unlike that, it apparently extends to the case of weekly, monthly, and quarterly tenancies.

The "double rent," payable under this Act, may be recovered by *distress*, as well as by action in the superior or county courts. A tenant who holds over for a year after the expiration of a notice to quit—paying double rent—may then leave without giving a new notice.

The best criterion for deciding whether a farmer is good or bad, is the state in which he keeps his farm. If it is foul and badly cultivated, it would be a great mistake to have anything to do with him.

True, he may have had no encouragement from his landlord, and may not be altogether to blame for a discreditable state of things. But, even then, a farmer who is naturally tasteful and practical in his calling, will afford evidence of the fact by one thing or another in his management; and an observer, skilled in agriculture, will have no difficulty in arriving at a sound decision.

In cases where an estate has been impoverished by a bad tenant, or where improvement is the first consideration, the Agent should strain every point to obtain a tenant of intelligence, respectability, and capital. When found, he should be treated with the greatest liberality, for it is most assuredly the direct means of improving the value of the estate, and of paving the way to an increase of rent. It is an old and just maxim, that rent should rise with the improvement of the estate, and such, in a thriving country like ours, will ever be the fortune of a well-tenanted farm. Of all things, the necessary additional farm-buildings ought not to be refused to an improver, who will, indeed, if he clearly understand his own interest, be ready to consent to an addition to his rent adequate to the interest of the money expended, rather than go without such essential means of improvement.

The following items on building and bricklaying, may be of some practical use to the Land Agent contemplating improvements:—

One statute brick is  $8\frac{3}{4}$  inches long,  $4\frac{1}{4}$  inches

wide, and  $2\frac{1}{2}$  inches thick; it weighs about 4lb. 15 ounces; 16 bricks to each foot of reduced brickwork; 7 bricks to each foot superficial of marl facing laid Flemish bond, and 10 bricks to each foot superficial of gauged arches; 272 superficial feet, or 306 cubic feet, make one rod of reduced brickwork of the standard of  $1\frac{1}{2}$  bricks thick.

To reduce cubic feet to the standard thickness, multiply by 8 and divide by 9.

450 stock bricks weigh 1 ton, and 1 rod of brickwork weighs 13 tons; 500 bricks make 1 load.

AREAS.	No. of Bricks required to build a wall of the thickness of				
	Half Brick.	1 Brick.	$1\frac{1}{2}$ Bricks.	2 Bricks.	$2\frac{1}{2}$ Bricks.
1 square foot	5·5147	11·0294	16·5441	22·0588	27·5735
2 ditto ...	11·0294	22·0588	33·0882	44·1176	55·1470
3 ditto ...	16·5441	33·0882	49·6323	66·1764	82·7205
4 ditto ...	22·0588	44·1176	66·1764	82·2355	110·2940
5 ditto ...	27·5735	55·1470	82·7205	110·2940	137·8675
6 ditto ...	33·0882	66·1764	99·2646	132·3528	165·4410
7 ditto ...	38·6029	77·2058	115·8087	154·4116	193·0145
8 ditto ...	44·1176	88·2352	132·3528	176·4704	220·5880
9 ditto ...	49·6323	99·2646	148·8969	198·5292	248·1615

#### APPLICATION.

The left-hand column contains the number of superficial feet in the wall to be built; the adjacent columns show the number of bricks required to build a wall of the thicknesses  $\frac{1}{2}$ , 1,  $1\frac{1}{2}$ , 2, and  $2\frac{1}{2}$  bricks.

Although the left-hand column only exhibits the number for units, the number for tens, hundreds, and thousands may be found by bringing forward as many of the decimals to the whole number of bricks

as the number required to be found is removed from the unit's place.

EXAMPLE 1.—Required the number of bricks necessary to build a wall 2 bricks thick, containing an area of 9 feet ?

9 will require 198. *Ans.*

EXAMPLE 2.—Required the number of bricks necessary to build a wall 1 brick thick, containing an area of 5,700 feet ?

5,000	will require...	55,147	
700	...	7,720	
60	...	661	
<hr/>		<hr/>	
5,760	...	63,528.	<i>Ans.</i>

An active and intelligent man, if Agent to an extensive estate, will necessarily have great weight and influence amongst the tenantry and inhabitants of a considerable district. He will thus find himself possessed of the power of rendering them services of various kinds, and of introducing and promoting economical improvements. This he will pursue with zeal, under the patronage and support of a patriotic principal, who also will find, in the adoption of such measures, the surest and most honourable method of promoting at once his own interests and those of his country.

Every Agent is, in general, a member of some kind of society or association, and some persons belong to many. These are intended for some useful

purpose, and every member has some duties to perform in connection with them. He owes some part of his time, some proper contributions, to the common object, and has an interest in the prosperity of the design. All these institutions do some good, and some of them eminent good, in helping on the great purpose of social life, which is general improvement. Of this nature are public charities, educational institutions, libraries, agricultural societies, and those for suppressing intemperance and immorality. No well-disposed citizen can conscientiously abstain from giving his aid and support to such objects. It is each one's duty to try to leave the world a little better than he found it. No one can say these are matters which do not concern him. Suppose every one should say so, and had said so from the beginning, society would still be made up of barbarians. Every good that is done in any community affects, directly or indirectly, every member of it. The law of example, of imitation, of doing as others do, has a most pervading and astonishing influence. Every community is like a full vessel of water, no one drop in it can be moved without affecting every other drop.

An eminent writer on agricultural subjects says, with reference to the advantages derived from attendance on meetings of such associations:—Many a scientific truth, at first ill received or even derided, is, nevertheless, carried away, clinging unconsciously to the mind, like the seed-down of certain self-dis-



seminating plants, and forms the germ in a new district of some useful experiment that may either prove it, or prove something else equally valuable. The increase of local and national societies has, of late, opened up a much wider field for mutual improvement, comparison, and instruction; and though the mere rivalry of stock exhibitions, resulting from the premium system, has to a great extent overlaid hitherto the more important subject of cultivation, there is growing evidence that this temporary excitement, if it may be so called, is giving way to a system calculated to promote more directly those branches of agricultural science which are the more backward only because they are less susceptible of ocular proof. A well drained and deeply cultivated field not being a subject of portable demonstration, obliges the admission of that secondary evidence furnished by the written record of the experiment; and while it brings into existence a kind of agricultural literature very different from that which is to be found in the essays of mere theorists and compilers, encourages that practical investigation and thoughtful discussion of principles which renders each man's individual experience and report an involuntary contribution to the common stock of knowledge.

The British farmers have long been reproached by the manufacturing and trading part of the community with being obstinately prejudiced in favour of old customs; and reflected on for not keeping

pace in improvements with other portions of the community, and for despising what they call book-learning. The great bulk of farmers are not readers, but we may at length congratulate ourselves that, through the laudable means of extensive and numerous institutions and farmers' clubs, supported with more or less effect by the influential nobility at their head, prejudice and absurd customs will soon give way to more enlightened principles. The farmer has an important duty to perform. It is not enough now to raise the scanty crops he has been in the habit of raising, since the population has increased, and is so much increasing; he is called upon, by the laws of both humanity and expediency, to redouble his exertions; and, though much good has been effected through the means of societies for the improvement of agricultural stock in the country, and the extension of those breeds, yet there remains much to be done to introduce these improved varieties into those parts of the country where they are best calculated to produce profit, by superseding the coarse, unprofitable, old stock.

If the greater part of the information contained in our agricultural publications be the result of long experience under the observation of scientific and practical men, then the knowledge they convey to the whole class of farmers must be of the most interesting and valuable description—

“For just experience tells, in every soil,

That those who think must govern those that toil.”

Knowledge in all scientific pursuits is a species of capital, but in none of more importance than in that of raising the necessaries of life. If any one doubt the utility of Agricultural Societies, especially when we consider they are founded on the laudable principle of obtaining and dispensing knowledge on the best means of raising human food,—let him reflect on what has already been effected; let him look into the new Cattle Market and other large marts, and compare the fine animals found there with the beasts of half a century ago, and the benefits arising from such societies will be manifest. It is true there was good stock in the country a century or more ago, but at that period it was confined to a few individuals; and it is by means of these Associations that the breeds have been so greatly improved, and dispersed throughout the country. The great object of these clubs is the advancement of agricultural knowledge by the union of men of like interests for mutual advantage and improvement. There is no class or profession which makes less use of this principle of association than the farming, and none to which it can be of so much practical benefit. The knowledge of the best methods of cultivation, and all agricultural information, are derived mainly from experience, and new facts are constantly coming before the eyes of every intelligent and observing farmer. These facts are of just as great value to his neighbour as to himself; and the neighbour, on the other hand, may have learned

something of equal interest. The interchange of results of observation and experiment is what gives agricultural papers their value; and these societies, though in a narrower range, all tend to the same end. The results of the experience of the individual farmers of a neighbourhood may be made general property to the advantage of the whole neighbourhood, as the experience of the best farmers of the country is made the general property of the country, by publication in an agricultural journal. Farmers are also socially united by such meetings, as they find profit and pleasure in the interchange of information and courtesy.

Whilst upon the subject of societies, we would further remark that Agents would do well to encourage Freemasonry as an excellent means of upholding good-fellowship between themselves and the tenantry. This notion may perhaps excite a smile in some weak-minded persons, who, indeed, do not scruple to represent the lodges of the order as caves of darkness, in which have been hatched the detestable revolutionary schemes of former times, as well as conspiracies against existing governments, and from which have issued those monsters of wickedness who unsettled the tranquility of Europe, and subverted the principles of religion and government. Proud of being a Past Master of the Ancient Institution of Free and Accepted Masons, I can most solemnly declare it to be an innocent, peaceable, and salutary association.

formed for the purpose of scientific improvement, and the exercise of mutual benevolence; strengthening that reliance which man places upon man, and drawing closer those ties which bind together the members of the same community; an association sometimes persecuted from mistaken jealousy by those in power, frequently attacked, but never overturned, and ranking among the list of its members the most celebrated monarchs of the world.

In England, publicity is a matter of common right. Here meetings may be held, speeches made, and writings published until the required remedy is found. Neither *gendarmes* nor soldiers are called into requisition unless on serious occasions. No troops, no spies, other than a few short-hand writers, sending off in haste despatches to the editors of newspapers on which they are employed. After a little harmless agitation, the people, satisfied with having exercised their rights, retire more attached than ever to the institutions by which these rights are secured.

The establishment of banks and the extension of paper money deserve the attention of the Land Agent. Such have certainly materially contributed to the improvement of Scotland. The celebrated Sir James Steuart, in his *Political Economy* (last edit., vol. iii, a. 197), says, "To the banks of Scotland the improvement of that country is entirely owing." Without going so far, it may



be safely asserted that to the improvement of Scotland they have materially contributed. Enterprising farmers have thus been supplied, when necessary, with aid to carry on their operations, and have obtained a better price, and a readier payment, for their commodities—no small inducements to exertion. Where the public banks or their branches, are established, the savings of the prudent and economical farmer have not only been safely deposited and borne an interest of from 3 to 4 per cent., but were always ready at his command. Moreover, when he required a little accommodation, he could avail himself of a bill of exchange.

A bill of exchange is a written order from one person to another, directing him to pay a sum of money either to the drawer or to a third person at a future time. This is usually a certain number of days, weeks, or months, either after the date of the bill, or after sight; that is, after the person on whom it is drawn shall have *seen* it, and shall have written on the bill the word "*Accepted*," and his name. If the bill be drawn after sight, he also writes the date of the acceptance.

Besides their utility as a means of transferring money from one place to another, bills have the following advantages :—

They are a means of transferring debts from one person to another. If we owe a man £100, and another man owes us £100, we will draw a bill for

that amount on our debtor, and give it to our creditor. We have thus transferred the debt from our debtor to our creditor, and our own debt is liquidated. Our debtor, instead of paying us the money he owed us, will pay it to the holder of the bill. Our creditor will now look for payment to our debtor, and consider us simply as a guarantee for the payment of the bill. If he wishes to make use of the bill, he will again transfer the debt to another party, placing his own name on the bill as an additional guarantee. The bill may thus pass through a variety of hands and liquidate a great number of debts, before it becomes due. When due, it will be paid by the acceptor who was the original debtor, and all these intermediate transactions will be closed.

Bills fix the period for the payment of debts, and in case of litigation they afford an easy proof of the debt. A person will have little scruple in putting off a tradesman to whom he owes money, and the creditor dares not be urgent, lest the debtor should no longer deal with him ; hence the time of payment can never be calculated upon with certainty. But if the customer has given a bill for the amount he owes, that bill will circulate into the hands of other persons who will be more peremptory in demanding payment, and whose applications cannot be disregarded with impunity.

Bills afford an easy mode of giving a guarantee. A person may wish to borrow money of us, and we

may be unwilling to lend it to him, unless he procure a more wealthy person to guarantee the repayment at a given time. If he has a friend that will do this, the most easy way of effecting the guarantee is by means of a bill drawn by the borrower upon his friend. This, in point of security, is the same thing as a letter of guarantee; but it has also this additional advantage, that if we should want the money before the time fixed for its repayment, we can get this bill discounted, and reimburse ourselves the money we have advanced. Bills of this description are called accommodation-bills, or wind-bills, or kites. When employed only as a means of affording occasional assistance to a needy friend, or for raising a sum of money for a short time, to meet an unexpected call, they do not appear to be very objectionable. But when systematically pursued for the purpose of raising fictitious capital whereon to trade, they uniformly indicate the folly and effect the ruin of all the parties concerned.

A curious anecdote is related of an eminent judge recently deceased, illustrative of these terms. When yet a junior, he had to refer to some questionable proceedings of this kind, and observed: "Now, gentlemen of the jury, the unfortunate defendant had been amusing himself by flying kites."

"Doing what?" interrupted the judge.

"Flying kites, my lord—putting his name to accommodation-bills."

“Why are they called kites?” inquired the judge.

“Why, my lord, as in the case of schoolboys’ kites, there is a connection between the kite and the wind—only there the wind raises the kite, and here the kite raises the wind.”

“Flying kites” in the monetary circle is extremely hazardous, and often ends in the ruin of thousands.

Agents should be very jealous of local industry, and set their faces against interlopers. Nothing can be more mischievous or injurious to a trade than for persons to interfere with it who are not regularly engaged in it. The Hon. Samuel Laing, M.P., mentions a very remarkable instance of this at Drontheim. “I was surprised on inquiring at the only bookseller’s shop, for a New Testament in the Norwegian tongue, to find that he kept none; I thought at first he had misunderstood me, but really found that he did not keep any of late years. As he understood German, I asked him how in a population of 12,000 people, the only bookseller kept no stock of Testaments and Bibles; he said that country booksellers did not find it answer, as the Bible Society of London had once sent out a stock which were sold much lower than the trade could afford, and it was only after the Society’s Bibles were sold that they could get clear of what they had on hand; hence, they could not venture to keep any now. It is plain if any benevolent society were to supply a parish with boots and shoes below prime cost, until all the

shoemakers in the parish had turned to other employments, the parish would soon be barefooted, and that they would do more harm than good unless they had funds to continue the supply for ever. This bookseller, a very respectable man, laid no stress upon the circumstance, but simply explained it as he might have answered any other inquiry about books; and a bookbinder, whom I afterwards saw, gave me the same reason. Men of the first capacity are connected with our societies for the distribution of the scriptures, and it may well deserve their consideration whether such distributions may not, in the long run, do more harm than good. If the ordinary mode of supplying human wants, by affording a fair remuneration to those who bring an article to where it is wanted, be invaded, they may be interfering with, and stopping up the natural channel, by which society must, in the long run, be supplied with religious books."

As a general proposition it is no doubt greatly to the advantage of the general public that things should be abundant and cheap. But there is a very manifest limit to this. It is not good for the permanent interests of the public, that the prices of commodities should fall below the cost of their production, because if they do so the producers will be ruined, and the public will either want the article altogether, or the price may afterwards become high, owing to the scarcity of the thing. When the market price of a commodity falls below



its production, it is called over-production, and it shows that further production should be curbed. It is manifestly the best for all parties that the prices should just be so low as to leave the producers a fair average profit. It would not be for the permanent interest of the people, that the price of corn should be so low that the producers of corn would be ruined. And it is highly desirable for the general benefit of all parties, that if such a misfortune should threaten, as timely notice of it as possible should be given, to enable people to accelerate consumption and curb production, and arrest the calamity. On the other hand if there is danger of an unusual scarcity, it is also equally for the benefit of all parties, that timely notice of it should be given, so that not only consumption may be retarded, but production stimulated—in each case, in order to restore the usual equilibrium between production and consumption, as quickly as circumstances will permit.

Referring to those liberal-minded proprietors who have the interests of humanity and their country at heart, there is a most important respect in which their Agents, if men of intelligence and due influence, may be eminently useful; we mean as the umpires, friends, and protectors of the labouring poor. Persons in either of these capacities may be instrumental in the public service, by humane and liberal attention to the just complaints of the labourer; and thus they will materially advance

the interests of the landowners, whose estates cannot long flourish under the languid and unwilling exertions of an enfeebled and discontented peasantry.

Kind words cost but little; they make nobody the poorer. Like the widow's cruse, the stock need not be exhausted even by constant using; yea, better than the widow's cruse, the stock increases the more it is used. One would think that kind words, diffusing gladness through the hearts of both donors and receivers, would be the common currency in life's intercourse; but we all know it is not always so. How often has a poor old man, who has travelled miles with trembling step to pay a portion of his rent, been sworn at by the Agent, simply because he could not pay the whole! This poor tenant had perhaps sustained a severe loss in his live stock, or long and continued sickness may have been the direct cause. Surely such conduct is most cruel. Harsh words towards those who by the nature of their position can make no defence, are not only galling to a sensitive mind, but often lead to future evils which no opposite influence can counteract. Kind words, and a manifestation of interest in a tenant's welfare, go further towards inducing him to make up a deficiency of rent than harsh words, backed by a thousand round oaths.

“A little word in kindness spoken,  
A motion, or a tear,  
Has often healed the heart that's broken,  
And made a friend sincere.”

It would be no less consistent with sound policy than with humanity, to keep the cottages of the labourers entirely in the landlord's hands, and never allow them to fall into the power of the farmer. A cottage ought to have every comfort and convenience adapted to the sons and daughters of labour, with a sufficient quantity of ground adjoining for the supply of vegetables and the smaller fruits. As a noble example of what ought to be done for the labouring class, we may instance Mr. Majoribanks, of Greenlands, Henley-on-Thames. This benevolent proprietor displays a wise appreciation of the bonds which so strongly unite the various classes of the community. He has given abundant proof that he cares for both the physical and moral condition of the labourer, by building decent substantial cottages for them upon his estate, with ample accommodation and garden allotments. Happily the power of an individual to influence progress in his own immediate neighbourhood is often very considerable, and, in this instance, we were, after minute inspection, delighted with the manner in which the agricultural labourers were housed and cared for.

“One of the characteristics of the age in which we live,” said the Chancellor of the Exchequer at the Hughenden Harvest Home, “is a just appreciation of the position of the labouring classes.” Although this statement has been disputed, we believe it, nevertheless, to be correct. It is acknowledged that the dwellings of the labouring classes

in rural districts are in many instances unsuitable; but, if so, the improvement of those dwellings has for some time been, and still continues to be, a matter to which landed proprietors and others interested have devoted much attention. The result is that, of late years, a very decided change for the better has taken place in this respect; and the reformation so well begun is, we feel bound to assert, progressing much more rapidly than any attempt of a similar kind to improve the dwellings of the labouring classes in large towns. The fact is, there is very little doing towards improvement in the latter respect, and those who have shown themselves so prone to take the beam out of the eyes of landed proprietors, as we find done by certain employers of "hands," should look first at home, and do something towards altering matters there, and thus remove the mote that obscures their own vision. Not to speak of what has been done on many estates in England and Scotland in the way of cottage improvement, we find that even in Ireland, where the peasantry at one time enjoyed the unenviable reputation of being "the worst clothed, worst fed, and worst housed" peasantry in the kingdom, cottage improvement has made wonderful progress. Substantial, and even handsome, dwellings have in many parts supplanted the former "mud edifices;" and old cottages, susceptible of improvement, have been renewed, and rendered more comfortable for those who inhabit them.

The position of agricultural labourers is very different now from what it was even a few years ago. Wages have increased considerably, being in many cases double what they were within our own recollection; and from the growing tendency to farm higher it is not likely that any diminution will take place, for the result of high farming is to increase employment, to raise labourers above the point of being mere drudges, "hewers of wood and drawers of water," and as a necessary consequence to increase the rate of remuneration, especially when the workmen are more than usually active and skilful. The introduction of improved machinery, so far from being an evil, has been a positive blessing to agricultural labourers; and as they have been benefited hitherto through this means, we may reasonably expect that with a more enlarged application of machinery to farm purposes, the position of our labourers will experience a corresponding degree of amelioration. The Chancellor of the Exchequer was perfectly right when he stated at Hughenden that "one of the characteristics of the age in which we live is a just appreciation of the position of the labouring classes." To deny this is to deny obvious facts; and we maintain that those who are directly interested in land are doing more for their dependents, and showing a greater concern for their welfare, than any other influential class in the community.

Behold, our Queen! she is fond of moving about



among the poor, and gives an interesting account in her very charming journal of visits paid to some old women :—

“ I went into a small cabin of old Kitty Kear’s, who is 86 years old—quite erect, and who welcomed us with a great air of dignity. She sat down and spun. I gave her, also, a warm petticoat ; she said, ‘ May the Lord ever attend ye and yours, here and hereafter ; and may the Lord be a guide to ye, and keep ye from all harm.’ She was quite surprised at Vicky’s height ; great interest is taken in her. We went on to a cottage (formerly Jean Gordon’s), to visit old widow Symons, who is ‘ past fourscore,’ with a nice rosy face, but was bent quite double ; she was most friendly, shaking hands with us all, asking which was I, and repeating many kind blessings : ‘ May the Lord attend ye with mirth and with joy ; may He ever be with ye in this world, and when ye leave it.’ To Vicky, when told she was going to be married, she said, ‘ May the Lord be a guide to ye in your future, and may every happiness attend ye.’ She was very talkative, and when I said I hoped to see her again, she expressed an expectation that ‘ she should be called any day,’ and so did Kitty Kear.

“ We went into three other cottages—to Mrs. Symons’s (daughter-in-law to the old widow living next door), who had an ‘ unwell boy ;’ then across a little burn to another old woman’s ; and afterwards peeped into Blair, the fiddler’s. We drove

back, and got out again to visit old Mrs. Grant (Grant's mother), who is so tidy and clean, and to whom I gave a dress and handkerchief, and she said, 'You're too kind to me, you're over kind to me, ye give me more every year, and I get older every year.' After talking some time with her, she said, 'I am happy to see ye looking so nice.' She had tears in her eyes, and, speaking of Vicky's going, said, 'I'm very sorry, and I think she is sorry hersel';' and having said she feared she would not see her (the Princess) again, said, 'I am very sorry I said that, but I meant no harm; I always say just what I think, not what is fut' (fit). Dear old lady, she is such a pleasant person.

"Really the affection of these good people, who are so hearty and so happy to see you, taking interest in everything, is very touching and gratifying."

From this volume of familiar journalizing the public will obtain a knowledge of many of those little details of family life which show how like the royal house is to other English houses. Thus they will learn that nearly all members of the royal family are known amongst each other by pet names. The Crown Princess of Prussia is called Vicky, the Prince of Wales, Bertie, the Duke of Edinburgh, Affie, and Princess Christian, Lenchen. We find by these confessions that, contrary to the common belief, the Queen was a poor sailor, generally ill at sea, while the Prince, though not a good sailor, contrived to keep pretty well.

The volume is inscribed, "To the dear memory of him who made the life of the writer bright and happy."

A popular London journal, referring to the diary, says one of its great charms is that it is a true picture of an English home of the present day. The charm of the happy fireside is the veil that hides it from the public gaze. That veil would still continue to conceal Queen Victoria's home from our eyes were it not that Death has set his seal on her life of wedded love and made it unfortunately a story told to the end. That the English home of the present day is what it is, is very much owing to the example and influence of the Court. We respect the late Prince Consort and our Queen, not solely for what they did and said during their united reign, but for what they were essentially. The Prince might have been a very blameless man, and his life innocent, prudent, and inoffensive, without being what he was—a thoughtful, accomplished gentleman, full of wise plans for the people's good, and creating in the palace a daily air of elevated thought. It is in this way that the Queen and he set a high example: literature, art, philosophy, science, were familiar as household words in Windsor, Osborne, Balmoral; and common life, with its sweet, humble lovingness, was raised ever into the keener air of lofty thoughts—into "that pure severity of perfect light" where Wisdom tries to give to man attributes almost divine. Notwith-

standing all that State ceremonials and courtly trappings can do, life in a palace is often homely enough, sometimes mean, or even odious; but *that* palace life was such that the best man in England might have been proud to live. If any of the Queen's subjects have regretted that when she has gone amongst them in public they could not come near enough to see her face, to hear her voice, to know what she does and how she does it, they may be consoled in reading this book: for through its pages they are drawn nearer to the every-day life of a living Queen than any persons not courtiers ever came before. And when, in the simple perusal of the diary, they have achieved that unexpected admission to the palace, they will be struck by the fact, that if the Royal writer is a crowned Sovereign, one of the five great Powers of the earth, she is even more emphatically an Englishwoman, in thought, in feeling, and in the earnest solicitude which shares every anxiety and aspiration of her people.

The law of supply and demand holds universally with regard to wages. An excessive increase of the people forces down wages by an inevitable law of nature, and as their numbers increase faster than employment, their wages must progressively diminish, and their comfort and scale of living become rapidly deteriorated. Nothing could save the scale of living of the poorer classes in this country from descending to the level of the Irish, or the Chinese, if their numbers went on increasing without a cor-

responding increase of employment. It is not unusual to hear persons of benevolence, who see the shocking misery which even now prevails among so many in this country, exclaim that employers ought to pay higher wages. But all such ideas are visionary. There is only one effectual mode of relief, and that is to diminish their numbers, by providing outlets for the superabundant hands, until the diminution of their numbers may again raise their wages, so that they can find constant employment, at wages which will enable them to live in comfort.

Agents should take very special interest in the commissariat of the people on the estates under their charge. As a general rule an ill-fed people will be low both in the physical and moral scale. The amount of work which a man is capable of doing is dependent on the quality and quantity of his food. Moreover, an ill-fed man is almost certain to be, as Mr. Kinglake describes an eminent diplomatist, an "imperfect Christian." His palate is sick for want of excitement, his stomach weak from want of tone; his digestion suffers, and he grows bilious or dyspeptic. Such a man is sure to look at life through jaundiced eyes; to be sour, sullen, querulous, and to be subject, perhaps, to a fatal appetite for intoxicating liquor. Sydney Smith uttered a grave truth when he said that friendships are often destroyed by toasted cheese, and hard salted meat has led men to suicide. Who can tell



how much domestic misery and brawling, how much drunkenness and brutality among the lower classes, may be traced to unwholesome ill-cooked food ?

There is no class of the community who are so hardly used in regard to food, so cheated and preyed upon by roguish dealers, as the poor. The convictions for adulteration and false weights show how large a proportion of the retail dealers are poisoners and thieves, and it is just on the very worst of the small shopkeepers that the poor are now dependent for their supplies. They are charged an exorbitant price for goods of the vilest quality, and are defrauded as to measure. Add to this their natural ignorance of the proper things to choose, and it will readily be understood how miserably deficient is the diet of the working classes. Two able reports by Dr. E. Smith on the "Economics of Diet and the Conditions of Nourishment" were published by the Privy Council in 1862 and 1863. They reveal some startling facts, especially as to the disparity between the money spent on food and the return obtained in nutriment. For example, people not only in the agricultural districts but in provincial towns are better fed than in London, although wages are much higher in the metropolis. A shilling procures for the silk weavers and throwsters of Spitalfields and Bethnal Green about 11,000 grains of carbon and 400 grains of nitrogen, while for the same sum the corresponding class in Coventry obtain 13,765 grains of carbon and 520 grains nitrogen, and those

of Macclesfield 16,008 grains of carbon and 600 grains nitrogen. The costly character of the dietary in London is due not so much to the relative prices of the articles in town and country as to the selection of foods which cost much in proportion to the nutriment they afford, such as sugar, fats, meat, and tea; whilst the cheapness of the dietary at Macclesfield is to be attributed to the lessened supply of these articles and to the increased use of breadstuffs, skim-milk, and butter-milk. For somewhat similar reasons Dr. Smith places Ireland above England in regard to the amount of nutriment received for a given sum of money, nearly twice as much carbon and two and a half times as much nitrogen being procurable for a shilling in Ireland as in England. Scotland, he says, follows next; then Wales, and England is last of all. The inquiry as to Scotland was, however, very limited, and Dr. Smith is obliged to own that he had great difficulty in eliciting information. Hence the returns as to that country are not trustworthy. One cannot believe that the cost of food per head is 4d. more in Scotland than in England. The general conclusion, however, is no doubt correct, that the great use of milk among the agricultural population in Scotland and Ireland gives them a superiority in diet over England. Scotland consumes milk at the rate of  $124\frac{3}{4}$  fluid ounces weekly per adult; Ireland, 135 ounces; and England, only 32 ounces.

The disinclination of the farmers to sell milk,

partly because it gives them trouble, and partly because it pays better to give it to the pigs, and the absurd prejudice of the labourers against the use of butter-milk, are a serious loss to the agricultural population of England; and the extension of the milk supply in the rural districts as well as in the towns deserves earnest consideration. Another defect in English diet is the popular ignorance of or dislike to broth. The Caledonian kale-pot might be introduced with advantage in many a southern cottage. Bones, scraps of meat, as well as vegetables, rice, &c., might thus be made into an agreeable and nourishing dish, without much skill or trouble on the part of the housewife.

Some years since, Lord Shaftesbury brought down to his estate in Dorsetshire a foreman accustomed to navvy labour. The new comer altogether refused to employ the local labour at 8s. a week, declaring that it would be dear at 6s., and demonstrated that the cheapest and best way of getting good work done quickly was to employ well-paid and well-fed spadesmen. At that time bricklayers in Dorsetshire were earning but 12s. a week, and were accustomed to lay between three and four hundred bricks a day, whilst London bricklayers, paid 24s. a week, were in the habit of laying upwards of a thousand bricks a day. Ill-paid labour and cheap labour are by no means synonymous terms: a potato-fed man, like a grass-fed horse, can only dawdle feebly over a day's work that a beer and beef fed navvy would dispose of with ease in three or four hours.

As the Land Agent should have a knowledge of the power of the horse for the purposes of draught and carriage, we give some details regarding it. We all know that this sprightly animal is next to the dog in sagacity and docility, and that the brute world does not contain any match for the horse in the highest points of utility. As *horse power* is the universal term used to express the capability of first movers of magnitude, it is essential that the estimate of this power should be uniform. It is, therefore, customary in Europe to estimate the power of a horse as equivalent to the raising of 33,000lbs. one foot high in a minute. One horse can draw horizontally as much as seven men; and the best disposition of the traces in draught is when they form a right angle with the collar. These are the essential points for the farmer, but the following statement regarding horse labour may be found useful as well as interesting:—

A *horse* travels 400 yards, at a walk, in  $4\frac{1}{2}$  minutes; at a trot, in 2 minutes; at a gallop, in 1 minute.

He occupies in the ranks a front of 40 inches, and a depth of 10 feet; in a stall, from  $3\frac{1}{2}$  to  $4\frac{1}{2}$  feet front; and at picket, 3 feet by 9.

Average weight=1000lbs. each.

A *horse*, carrying a soldier and his equipments (say 225lbs.), travels 25 miles in a day (8 hours).

A *draught horse* can draw 1600lbs. 23 miles a day, weight of carriage included.

The ordinary work of a horse may be stated at 22,500lbs., raised 1 foot in a minute, for 8 hours a day.

In a *horse mill*, a horse moves at the rate of 3 feet in a second. The diameter of the track should not be less than 25 feet.

A *horse power* in machinery is estimated at 33,000lbs., raised 1 foot in a minute; but as a horse can exert that force but 6 hours a day, one machinery horse power is equivalent to that of 4·4 horses.

*Table of the Amount of Labour a Horse of average strength is capable of performing, at different velocities, on Canals, Railroads, and Turnpike Roads.*

## FORCE OF TRACTION ESTIMATED AT 83·3 LBS.

Velocity in miles per hour.	Duration of the day's work.	Useful effect for one day in tons, drawn one mile.		
		On a Canal.	On a Railroad.	On a Turnpike.
Miles.	Hours.	Tons.		Tons.
2½	11½	520	115	14
3	8	243	92	12
3½	5 <sup>9</sup> / <sub>10</sub>	153	82	10
4	4½	102	72	9
5	2 <sup>9</sup> / <sub>10</sub>	52	57	7·2
6	2	30	48	6
7	1½	19	41	5·1
8	1 <sup>1</sup> / <sub>8</sub>	12·8	36	4·5
9	<sup>9</sup> / <sub>10</sub>	9·0	32	4·0
10	<sup>3</sup> / <sub>4</sub>	6·6	28 8	3·6



The actual labour performed by horses is greater, but they are injured by it.

The expense of conveying goods at 3 miles per hour per horse teams being 1, the expense at  $4\frac{1}{2}$  miles will be 1.33, and so on, the expense being doubled when the speed is  $5\frac{1}{3}$  miles per hour.

The strength of a horse is equivalent to that of 5 men.

When a horse is employed in moving a machine in a circular path, the diameter of this path should not be less than 25 to 30 feet; 40 feet would be still better.

The economy of labour is but little studied; most persons wish to dispatch the operations of farming with as little delay as possible: but, instead of studying how to perform them well with the least power, they generally apply only a portion of the labour necessary, and at a much greater cost than if they had judiciously used the power they possessed.

A man with two sticks may be heard day after day, week after week, thumping the corn in a barn; or three or four horses may be seen toiling and sweating in a machine; when in some cases a stream of water might be made, with little expense, to perform the work. Had not the manufacturers studied the economy of labour more than the agriculturists, the balance of commerce, instead of being in our favour, would have been sadly reversed. The rent on these lands is generally moderate. It should be borne in mind that corn can be thrashed

for one-third less by steam than by horse power ; moreover, that the horses can be much more profitably employed elsewhere on the farm. The cost of moving, thrashing, and dressing a stack of wheat by the aid of a steam-engine is about  $10\frac{1}{2}$ d. per quarter, while by horse power it would be as much as 2s. 6d. per quarter. The expense of moving in, and thrashing and dressing a stack of mown wheat containing 90 coombs, by the stationary engine, is  $5\frac{1}{4}$ d. per coomb of 4 bushels, as may be seen by the following statement :—

#### THRASHING BY STEAM POWER.

*Cost of moving a stack of mown wheat, thrashing,  
and dressing ninety coombs.*

	£	s.	d.
Two men one day at stack . . . .	0	3	4
Two men one day loading . . . .	0	3	4
One man one day raking loads, binding, &c. . . . .	0	1	8
One man to feed machine . . . .	0	2	6
One man attending to corn . . . .	0	1	8
One man unloading wheat . . . .	0	1	8
Two men putting sheaves to feeder .	0	3	4
One woman pulling out straw . . .	0	0	10
Two women after straw . . . .	0	1	8
One man and three women dressing	0	4	2
One man driving engine . . . .	0	3	6
Half ton of coals . . . . .	0	10	0
	<hr/>		
	£1	17	8

The cost of thrashing by steam, being  $5\frac{1}{4}$ d. per coomb.

## THRASHING BY HORSE POWER.

	£	s.	d.
Five men at stack . . . . .	0	8	4
Four men in barn . . . . .	0	6	8
One man one and a half day feeding	0	3	9
One man one and a half day driving horses . . . . .	0	2	6
Two men one and a half day in barn	0	5	0
One lad one and a half day untying sheaves . . . . .	0	1	6
Five women to shake straw . . . .	0	6	3
Two men one and a half day after straw . . . . .	0	5	0
Three men one and a half day to riddle and clear away corn . . .	0	7	6
Six men and four women one day dressing . . . . .	0	13	4
Six horses five hours thrashing, at 3s.	0	18	0
Ditto ditto ditto . . . . .	0	18	0
Ditto ditto ditto . . . . .	0	18	0
	<hr/>		
	£5	13	10

The cost of thrashing by horse power, being at the rate of 1s. 3d. per coomb.

After the experienced advantage of powerful thrashing-mills on large farms, they have now become indispensably necessary; and farmers who have been accustomed to the dispatch, security, and

economy which they contribute to the management of extensive concerns, would find themselves reduced to most unpleasant inconvenience, should any circumstances oblige them to have again recourse to the flail.

The trial and prize system of the Royal Agricultural Society of England, 1867, took place at Bury St. Edmund's. We think it was a mistake to have gone out of the line of the great traffic of the kingdom, and to have selected a place situated on a single-line railway. However, the loss is with the Society. The gain is with those who availed themselves of the opportunity to see the finest and the largest collection of implements and machines which has ever been brought together, and to learn the lesson which the collection was so well calculated to convey. The trials were conducted with much care and deliberation. The cycle of machinery was the same as at Worcester in 1863, and included steam engines, fixed and portable, with one and with two cylinders, threshing machines, chaff cutters, crushing mills, hand dressing machines, turnip cutters, oilcake breakers, corn screens, barley hummellers, grinding mills, and field gates. The steam engines were subjected to severe tests, and the results were certainly remarkable. For fixed engines the first prize of £20 was gained by Messrs. Clayton and Shuttleworth; the second, of £10, by Messrs. Tuxford. The first ran no less than 2 h. 42 m., with only 4.44 lbs. of coal per horse power per hour, price £260; and the second 2 h. 14 m.,

consuming in that time similarly 5·92 lbs., price £250; both of these were 10-horse power engines. For portable engines with two cylinders, over 10-horse power, the Messrs. Clayton and Shuttleworth were again successful, taking the first prize of £25, Messrs. Ransome and Sims the second prize of £15. In this case, Messrs. Clayton ran 1 h. 30½ m. with 3·75 lbs. of coals per horse power per hour, price £310, and the Messrs. Ransome 1 h. 38 m., consuming 3·35 lbs. of coals similarly, price £350. For portable engines with one cylinder, not exceeding 10-horse power, the Messrs. Clayton were for the third time successful, taking the first prize of £25, the second of £15 going to Messrs. Tuxford. Messrs. Clayton's ran 1 h. 38½ m., consuming 2·71 lbs. per horse power per hour; and Messrs. Tuxford's 2 h. 15 m., consuming 2·98 lbs. similarly, the price of both engines being the same, £220. A maximum result has unquestionably thus been obtained, both for the work done and the economy of fuel; but there can be no doubt that much was due to the engine-drivers for their skill in working, and they were accordingly rewarded. As steam becomes more generally used, it will be well for farmers to look to get such drivers, but at present we fear they are but few; at all events it would pay in the end to have a training school, for as so much saving would be effected by superior working, there would be a larger number of engines brought into use, for not the first cost alone forms the drawback, but the expense of working too. The interests both of



the manufacturer and the farmer would thus be served, for there would be a greater demand for engines, and the work would be done better and cheaper. The single-cylinder engines were worked at 50 lbs. pressure, the double at 80 lbs. pressure. For threshing machines not exceeding 8-horse power—which prepare for the finishing dressing machine—the first prize of £20 went to Messrs. Ransome and Sims, and for the same, under 10-horse power, Messrs. Willis and Haslam took the first prize of £12, and for finishing machines the first prize of £20 went to Messrs. Holmes. The other first prizes were as follows:—For chaff-cutters, Messrs. Richmond and Chandler; for crushing mills, Messrs. Woods and Cocksedge; for hand dressing machines, Messrs. Tasker; for turnip-cutters, Messrs. Hornsby; for oilcake breakers, Messrs. Amies and Barford; for cornscreens, Messrs. Hornsby; for barley hummellers, Messrs. Holmes; for grinding mills, Messrs. Amies and Barford; for bone mills, the Beverley Iron Works took all the three prizes offered; and for stone mills, Messrs. E. and F. Turner. In the miscellaneous department some ten silver medals were given. In this class there seem to have been awards made for mere heaps of machines, as if numbers of implements were sufficient for such an exhibition; but it would be better in future to bring some of these into more prominence, and offer prizes for them in classes.

The following are the results of the trials of steam-engines in a tabular form:—

## SINGLE-CYLINDER PORTABLE STEAM-ENGINES.

Names of Exhibitors.	No. of Stand.	No. of Article in Catalogue.	Horse-Power of Engine.	Getting up Steam.			Coal Burnt per Hour in lbs.	Coal Burnt per Horse Power.	Price.	Remarks.
				Time taken in Getting up Steam.	Fuel Burnt in Getting up Steam.					
					Coal.	Wood.				
					lb.	lb.			£	
Holmes & Sons .....	146	3472	8·55	All these Engines required about One Hour to get up Steam.	41	8	50·67	5·92	225	1st prize, £25.
Burrell, C. ....	134	3063	8·10		36	8	68·24	8·42	250	Highly com.
Clayton & Shuttleworth	256	4733	8·10		44½	8	28·02	3·45	220	Highly com.
Brown & May ..	257	4747	8·10		36½	8	45·12	5·56	210	Highly com.
Barrow & Carmichael ..	242	4613	7·20		41	8	48·12	6·68	195	Highly com.
Reading Iron Works Company .....	114	2507	10·00		48	8	41·23	4·12	240	Commended.
Ruston, Proctor, & Co....	250	4676	9·50		35	8	61·78	6·50	210	Commended.
Marshall, Sons, & Co. ...	244	4621	7·80		48	8	47·10	6·03	230	
Underhill, W. S. ....	170	4092	6·40		43	8	67·03	10·47	180	
Ransomes & Sims .....	150	3555	10·00		44½	8	49·48	4·94	260	
Allchin & Son .....	270	4780	8·10	All these Engines required about One Hour to get up Steam.	40	8	41·64	5·14	215	
Nalder & Nalder .....	272	4787	6·40		33	8	54·82	8·56	195	
Tuxford & Sons .....	247	4639	8·10		52½	8	31·57	3·89	220	2nd prize, £15.

## FIXED STEAM-ENGINES.

Names of Exhibitors.	No. of Stand.	No. of Article.	Horse-power of Engine.	Coal Burnt per Hour in lbs.	Coal Burnt per Horse-power in lbs.	Price.	Remarks.
Tuxford & Sons .....	247	4645	10	59.32	5.93	£250 0 0	2nd prize, £10.
Reading Iron Works Company .....	114	2505	10	60.34	6.03	230 0 0	Highly commended.
Rawlings, J. J. ....	266	4766	8	62.92	7.86	100 0 0	Commended.
Kinsey, H. ....	261	4758	10	79.09	7.90	107 10 0	Commended.
Deacon & Wood .....	231	4597	8	51.37	6.42	50 0 0	Commended.
Clayton & Shuttleworth.....	256	4731	10	44.44	4.44	240 0 0	1st prize, £20.

## DOUBLE-CYLINDER PORTABLE STEAM-ENGINES.

Names of Exhibitors.	No. of Stand.	No. of Article in Catalogue.	Horse-Power of Engine.	Getting up Steam.			Coal Burnt per Hour in lbs.	Coal Burnt per Horse-Power.	Price.	Remarks.
				Time taken in getting up Steam.	Fuel Burnt in Getting up Steam.					
					Coal. lb.	Wood. lb.				
Clayton & Shuttleworth	256	4732	15.12	All the Engines require about One Hour to get up Steam.	55½	8	55.98	3.70	£ 310	1st prize, £25.
Brown & May .....	257	4746	12.50		67	8	66.07	5.28	260	Highly commended.
Ransomes & Sims ....	150	3553	15.12		73	8	63.52	4.20	350	2nd prize, £15.
Tuxford & Sons .....	247	4641	14.22		78	8	61.55	4.32	355	Highly commended.

A comparison of the age of animals is rather interesting. A dog lives twenty years; a wolf, twenty; a fox, fourteen or sixteen. The average age of cats is fifteen years; of a squirrel or hare, seven or eight years. Elephants have been known to have lived to the great age of 400 years. When Alexander had conquered Porus, the Indian king, he took a great elephant, which had fought valiantly for the king, and naming him Ajax, dedicated him to the sun, and let him go with this inscription—"Alexander, the son of Jupiter, hath dedicated Ajax to the sun." This elephant was found with this inscription 350 years after. Pigs have been known to live to the age of thirty years; the rhinoceros to fifty. Camels sometimes live to the age of 100. Stags are long-lived. Sheep seldom exceed the age of ten. Cows live about fifteen years. An eagle died at Vienna at the age of 104 years; ravens frequently reach the age of 100. Swans have been known to live 300 years. Pelicans are long-lived. A tortoise has been known to live much above 190 years; and a horse to the age of seventy-two, but he averages twenty-five or thirty.

Climate and soil exercise a great influence upon horses. Nearly every country possesses a breed of horses peculiar to itself, occasioned by the difference in soil and climate. In wild regions, the horse is small, compactly built, and having a very hardy constitution; where the forage is scant, he has a light frame, with a rapid gait, so that he can travel

easily in search of food ; while in a more favourable situation, he combines speed and power of endurance with beauty of form and elegance of action. The diminutive Shetland pony, when transported to England, loses this peculiarity of form in the course of a few generations, and approaches the native horse in bulk and general characteristics. The noble Arabian degenerates in England, and the English dray horse, noted for its heavy limbs, if carried to Arabia, acquires in time the symmetry, grace, and speed of the native. Of the early history of the horse there is not much known. In his original state he was undoubtedly wild, but of the time of his domestication we have no knowledge. Arabia is generally considered his native country, but we know that he did not flourish there until after the birth of Mahomet, 571 A.D. There is not a portion of Europe, nor scarcely any part of the globe, from the tropical plains of India to the frozen regions of Siberia—from the extreme northern to the extreme southern limits of America, in which the fossil remains of the horse have not been found mingled with the bones of the hippopotamus, the elephant, the rhinoceros, the bear, the tiger, the deer, and various other animals, some of which, like the mastodon, have passed away.

For the combined excellences of symmetry of form, beauty of action, speed, power of endurance, intelligence, docility, and attachment to his master, the Arabian horse has long maintained an unrivalled



superiority. He is bred with the greatest care, and the Arabs believe that the breed originated with the steed of King Solomon, and exhibit the pedigrees of some mares reaching back nearly two thousand years. The poor Arab regards his horse with the greatest affection, feeds him from his own hand, and makes him an inmate of his own single tent. Arabian stallions have been imported at different periods, and have given rise to all the improved breeds of Turkey, Persia, Barbary, Europe, and America.

Like the dog, the horse often becomes indissolubly attached to the habits and manners to which he has long been accustomed. He delights in the noise and tumult of arms, and faces the enemy with alacrity and resolution. Equally intrepid as his master, he encounters danger and death with great coolness and courage. But it is not in perils and conflicts alone that he willingly co-operates with his rider; he likewise participates in human pleasures. He excels in the tournament and in the chase; and his eyes sparkle with emulation in the race course. But, though bold and intrepid, he does not allow himself to be carried off by a furious ardour; he represses his movements, and knows how to govern and how to check the natural vivacity and fire of his temper. He not only yields to the hand, but seems to consult the inclination of his rider. Uniformly obedient to the impressions he receives, he flies or stops, and regulates his motions entirely

by his master's will. In a measure he surrenders his very existence to the pleasure of man. He delivers up his whole powers ; he reserves nothing, and often dies rather than disobey.

Of domestic animals, the horse occupies the first place ; and as improvement of his form is a scientific operation, it can only succeed in the hands of the gentleman breeder.

What a beautiful description Job gives of the horse—

“Hast thou given the horse strength ?  
 Hast thou clothed his neck with thunder ?  
 Hast thou taught him to bound like the locust ?  
 How terrible is the sound of his nostrils !  
 He paweth in the valley ; he exulteth in his strength,  
 And rusheth into the midst of arms.  
 He laugheth at fear ; he trembleth not,  
 And turneth not his back from the sword.  
 Against him rattleth the quiver,  
 The glittering spear, and the lance.  
 With rage and fury he devoureth the ground ;  
 He standeth not still, when the trumpet soundeth.”

Who that witnessed the Derby of 1865, did not feel his heart warm towards the superb creature who so gracefully swept over those three hundred and thirty strides which are computed to cover the celebrated mile and a half at Epsom ? Who, that did not scan with unbounded admiration the noble Gladiateur as he achieved the greatest and most

coveted honour on the English turf, after a desperate struggle of hoof and heel, of limb and wind and withers? Most heartily do we congratulate our neighbours on the happy result of a genial and friendly rivalry—on their having borne off the blue riband so triumphantly. True, the winning horse came of English blood, was prepared by English trainers, and ridden by an English jockey; nevertheless, there is not a whit less honour and glory to Count Lagrange, who has given such abundant proof that he is a genuine lover of our great national pastime. We love the Derby-day. Other race-courses have their peculiar glories—Royalty may glitter at Ascot, fashion may congregate at Goodwood, but Epsom is of and for the people. There the peer and the beggar have, for a day at least, one common interest. We rejoice to note that many favourable changes are coming over the aspect of the great Epsom race. We hear less of training tricks, deceptive weights, dishonest collusions, betting jockeys, and the other jobberies by which the turf has so often been disgraced. The one remaining blot is the repulsive fraternity of betting men, by whom many a thoughtless youth is ruined for ever. These are the pests of every race-course in the kingdom; they disfigure them, and render them unspeakably offensive. It is much to be regretted that the Newmarket regulations do not exist at Epsom. Immeasurable would be the benefit to the respectable classes who support the

turf, enjoy its pastime, and inter into its legitimate speculations, could the whole brood of sharks and blacklegs be extirpated. They have been multiplied, however, rather than diminished, by the modern system of sweepstakes. But these fellows seldom become rich, although vast fortunes have been made by racing transactions. Think of the Yorkshire footman leaping all at once into the position of a landed proprietor who could afford to give three thousand guineas for a horse; the son of the ostler of the Black Swan at York, building the noblest mansion in the city; and Beardsworth of Birmingham parading with crimson liveries the streets in which he once drove a hackney coach. But it is a fatal delusion to suppose that "outsiders" can accomplish anything of the kind. They may now and then be lucky, but in the end, as a rule, they burn their fingers. The successful men are jockeys or trainers. They live perpetually within the circle of the turf; it has no mysteries or secrets for them. They know every colt and filly in all the great studs of England. Their eyes are keen in the warren, when the saddling and mounting takes place; they can tell when a false start has been "managed" or not; and they, of all the thousand assembled, are coolest as the rainbow cohort goes off with a rush and a thrill, as the best mettle gets to the front, and the "soft hearts" are left behind, and the dash is made at the corner, and, amid a whistle of whips and a general throb, white, black, or blue cap, green,

red, or purple jacket, comes with a last bound to the post. It is true, that without betting there would probably be little racing. It is true also that the leaders of the turf no longer sanction those disreputable practices which induced a well-known stud-keeper to say that, were Eclipse now to run, he might have no more chance of winning than "a jackass or a horse on three legs." But the betting system, outside of the respectable circles tolerated by the Jockey Club, has degenerated into a system of depredation carried on against the ignorant and unwary. Persons, therefore, cannot be too sensitively on their guard against invitations from plausible strangers, who prove, before the race is run, that they cannot be losers. For them the enjoyment of our Isthmian festival turns to grief indeed when the colours are hoisted; and not the fun of the road, the sparkle of Moselle, the banter of mischievous friends, or the rattling hilarity of the afternoon at Epsom, will make up for the purse which has been emptied of money that probably did not belong to its owner. Apart from many important results of this noble sport, we most cordially and sincerely hope that Count Lagrange may be so encouraged by his again great success, in having won the St. Leger of 1865, as to continue the rivalry with greater zeal and energy, were it only for the benefit to the breed of horses. There is no doubt now about Gladiateur. We have certainly been beaten by speed and training, and



not by fraud and misrepresentation, as some would have it.

The Ascot Meeting of 1867 was a very brilliant affair. The first race was of little interest, and was won by Lord Westmoreland's Vixen Colt. The next was the Fourth New Biennial Stakes. For this, Lord Lyon was to appear, and he was quickly surrounded in the paddock by a circle of admirers. The great horse was in splendid condition, and, although he had to carry 12lb. extra, backers were glad to bet 7 to 4 and 2 to 1 upon him against the others over his favourite distance. The result showed that Lord Lyon is a marvellous horse over a mile when brought out only now and then. He cantered ahead of Wild Moor all the way up the hill, and opposite the stand Challoner came away with him, and won hands down by as many lengths as he pleased. The two-year-old race which followed, was won by an outsider named Tregeagle, the favourite, See Saw, being second, and then came the great race for the Cup. For this a larger number came to the post than was expected. The race was, nevertheless, deprived of a great deal of its interest by the absence of The Hermit and Marksman. It would, of course, have been unwise to bring out the former, when he has so good a prospect of winning the St. Leger, and Marksman was out of form. Until the saddling commenced, Hippias had been easily first favourite. Now, however, Lecturer began to be backed with extraordinary

vigour. In the paddock, nothing looked better than the Marquis of Hastings' strange little horse, as he had quite recovered from the stale and jaded look which he wore at Bath. Rama also looked well. Regalia was prepossessing, but, great mare as she is, it seemed impossible that she could go on running well day after day. Hippia was the last to come forward. She was quite as fit as on the Oaks Day, but the distance was greater, and at the last moment a doubt arose whether after all she might be able to stay the two miles and a half. No less than three Oaks' winners contested the prize, for Tormentor also ran. As usual, the competitors were all walked round the Jockey Club enclosure for the inspection of the Prince of Wales and the members. A very handsome lot they were, though, perhaps, none quite first-class. Certainly, no one ignorant of the previous performances of the animals would have picked out Lecturer for the winner, comparing his queer little carcass, with its great long neck and head, with the strapping Regalia and neat-made John Davis.

On passing the stand for the first time round, John Davis was leading and making the running for his stable companion, who lay some lengths behind with Regalia and Hippia. John Davis kept the foremost position, with Rama close to him, until reaching the starting post for the old mile, when Rama seemed to be going very well, and Regalia came rapidly forward. Upon coming round the

turn into the straight run in, the greatest excitement prevailed, and it certainly seemed half-way up as if Regalia must win, for Hippias was beaten, and Lecturer, having once come up in his sturdy way, had again dropped back. Opposite the stand, it seemed that Heartfield thought he had won, for he gave up riding Regalia and looked behind him. At this moment, Fordham, who manifestly had thoroughly judged the pace from beginning to end, brought up Lecturer for the second time with a rush. Regalia either could not or would not answer to the challenge, and thus Lecturer, who ran as if he really liked to have a good struggle for the prize, was enabled, with the aid of Fordham's splendid jockeyship, to win the Ascot Cup for the Marquis of Hastings by a length and a half. The result of the race shows what rest will do for a thoroughly good animal. Lecturer had not been raced for three weeks, and so he comes out better than ever, whilst Regalia's chance is thrown away by constantly knocking her about. Hippias was third, and if she had done nothing else this would prove her to be a good filly. It is worthy of remark, that the two first favourites for the far off Derby are fillies, and both Lady Elizabeth and Athena (14 to 1) belong to the Marquis of Hastings.

These racing notes may appear to some persons rather out of place in a work of this kind; but we think as the horse is at the head of all useful animals for the purposes of the farm, the hunt, and

the race, we are not, perhaps, committing so great a digression.

In proof that breeding superior horses is extremely profitable, we give the prices obtained at the sale of the Marquis of Hastings' stud, in November last. The sale attracted great attention among racing men, and was largely attended. The two principal lots, the Derby favourites, Lady Elizabeth and The Earl, were, it was understood, bought in for the owner. Lecturer and Lady Cecilia were also understood to be bought in. See-Saw was said to be purchased for Lord Stamford. Captain Machell bade up to 6000 guineas each for Lady Elizabeth and The Earl. Redcap, 6 yrs. (Mr. Hughes), 200 gs.; Miss Havelock, 4 yrs. (Duke of Newcastle), 460 gs.; Lord of the Dales, 3 yrs. (Lord Uxbridge), 500 gs.; John Davis, 6 yrs. (Duke of Hamilton) 1000 gs.; Lecturer, 4 yrs. (Mr. H. Hill), 750 gs.; Black Prince, 4 yrs. (Sir F. Johnstone) 220 gs.; Challenge, 3 yrs. (Mr. Cavellero), 2000 gs.; King's Cross, 3 yrs. (Jos. Dawson), 160 gs.; Uncas, 3 yrs. (Mr. H. Hill), 200 gs.; Red Riband, 3 yrs. (Mr. Payne), 150 gs.; Ines, 3 yrs. (Mr. John Harrington), 500 gs.; Equerry, 2 yrs. (Mr. Padwick), 200 gs.; Purser, 2 yrs. (Mr. Padwick), 100 gs.; Little Prince, 2 yrs. (Mr. Padwick), 190 gs.; The Earl, 2 yrs. (Sir F. Johnstone), 6100 gs.; See-Saw, 2 yrs. (Lord Wilton), 2300 gs.; Boreas, 2 yrs. (Lord Jersey), 105 gs.; Mameluke, 2 yrs. (Lord Jersey), 1050 gs.; Belfast, 2 yrs. (Mr.

Edwyn), 700 gs.; Lady Barbara, 2 yrs. (Captain Barlow), 200 gs.; Traviata, 2 yrs. (Mr. Blenkiron), 120 gs.; Grand Duchess, 2 yrs. (Mr. Hill), 520 gs.; Cuckoo, 2 yrs. (withdrawn); Naivete, 2 yrs. (Mr. Padwick), 700 gs.; Housemaid, 2 yrs. (Lord Portsmouth), 150 gs.; Summer's Eve, 2 yrs. (Mr. Morris), 300 gs.; Jasmin, 2 yrs. (Mr. Snewing), 100 gs.; Macduff, 2 yrs. (Mr. Hughes), 110 gs.; Minnie Warren, 2 yrs. (Lord Uxbridge), 410 gs.; Athena, 2 yrs. (Mr. Padwick), 2100 gs.; Lady Elizabeth, 2 yrs. (Sir F. Johnstone), 6500 gs. *Yearlings*.—Lady Di, by St. Albans, out of Lady Vernon (Mr. Hughes), 190 gs.; Leda, by Dundee, out of The Belle, by Birdcatcher (Mr. Cockin), 110 gs.; Ænope, by Weatherbit, out of Triangle (Mr. H. Hill), 105 gs.; The Conjuror, by Newminster, out of Madame Stodare (Mr. Pryor), 300 gs.; Jove, by Thunderbolt, out of Melody (Lord Wilton), 430 gs.; Rowallan, by Dundee, out of Maggie Lauder (Lord Uxbridge), 340 gs.; Bathsheba, by Trumpeter, out of Miserrima (Mr. Pryor), 750 gs.; Arbaces, by Oxford, out of Van Tromp mare (Isis's dam) (Mr. H. Hill), 420 gs.; King of Clubs, by Ace of Clubs, out of Homily (Mr. H. Hill), 220 gs.; Lopez, by Buccaneer, out of Creeping Rose (Mr. H. Hill), 280 gs.; Iberia, by Weatherbit, out of Maid of Palmyra (Mr. H. Hill), 370 gs.; Merrymaker, by Trumpeter, out of Maypole (Sir F. Johnstone), 300 gs.; Lord Bothwell, by Dundee, out of Little Woman (Mr. F. V. Morgan), 200 gs.; Kamschatka,



by Trumpeter, out of Tzaritza (Mr. Stephenson), 620 gs. ; Lord Warwick (Mr. T. Hughes), 100 gs. ; Colt, by Kettledrum, out of Amethyst (Lord Uxbridge), 200 gs. ; Colt, by Thormanby, out of Breeze (Mr. Edwyn), 500 gs. ; Filly, by Orlando, out of Bouquet (Mr. H. Hill), 510 gs. ; Basilia, by Trumpeter, out of Energy (Captain Clayton), 1000 gs. ; Lady Cecilia, by Stockwell, out of Bay Celia (Mr. H. Hill), 1650 gs. ; Robespierre, by Stockwell, out of Marseillaise (Captain Machell), 800 gs.

We have been estimating the money value of the performances of the famed mare Achievement during her wonderful career, from her first appearance as a two-year-old at Newmarket, to her last victory at Doncaster. Out of the twenty races she has run during that period, she has won fifteen, and in stakes alone, she has netted for her spirited owner, Colonel Pearson, a sum of £28,000, literally her weight in sovereigns, as the following calculations will prove. Assuming the price of gold at £3 17s. 6d. per oz., there would be on every cwt., as nearly as possible, 7000 sovereigns—we don't make a very close calculation, as it is not necessary—4 cwt. would make up 28,000, and, taking the mare as being about this weight, as she is slight and slim, it will be seen that she has really been worth her weight in coined gold, irrespective altogether of the sums Colonel Pearson may have netted by bets.

Such of us as visited the Islington Horse Show, can hardly doubt that, whilst there will not be any

grudge felt at the successes of Gladiateur, the English thoroughbred will still maintain his proud position in a contest with France, America, Austria, or Russia. Foremost among this noble class was our old friend Caractacus, a winner of the blue riband of the turf, who took the first prize last year, and has this year taken it again. Diophantus takes the second prize, and Scottish Chief the third. The names of Lord Chesterfield, Lord Portsmouth, Lord Falmouth, Lord Combermere, Lord Suffield, Colonel Maunds, C.B., Mr. Frederick Winn Knight, and Captain Percy Williams, give unquestionably a sufficient guarantee that the onerous duty of awarding prizes has been conducted with the strictest impartiality and good judgment; yet many persons think that Scottish Chief, though contrasting strongly with his rivals, being only just out of training, and consequently not in the usual fleshy condition of stallions, ought to have been placed second. *Quot homines, tot sententiæ*. The show consisted of nearly 400 entries divided into 10 classes, and it is not too much to say that amongst them were some of the finest specimens of the horse to be met with in all England. The hunters were really magnificent, and, though no one will grudge the premiership to Lord Spencer's Brown Stout, there are many who feel keenly disappointed that the two splendid hunters sent by Lord Rendlesham should have been entirely overlooked. We would remark that it is scarcely fair to denounce hunters, because

they refuse in cold blood a "suspicious-looking" *in-door gorse fence*. Even Brown Stout had to be driven hard at it before clearing it, having boggled at first to rise to it. Were such a "mean" obstacle to meet this noble animal in the hunting field, he would fly over it with a snort of contempt. It may be stated, moreover, that the tan lacked sufficient elasticity from having been rather too thin and too wet. It balked the horses a good deal in rising. This was very noticeable when a charming and graceful rider rode her beautiful horses over the hurdles amid the vociferous acclamations of the many thousands who graced the brilliant scene. The entire show was, in fact, eminently deserving of that success which it achieved. The show of last year was also a success. The number of entries was much larger than the previous year, and, taking the animals collectively, their quality was quite as good as ever. In the catalogue 340 horses were set down. Of these, the first class—weight-carrying hunters—contributed 53; as cover hacks, park hacks, and ladies' horses, 107 were entered; there were 50 ponies, and in the various classes of stallions there were 42 animals, although only nine of these were thoroughbreds. The show of weight-carrying hunters was not generally regarded as up to the mark of previous years, and the thoroughbred stallions did not include any well-known animal, but the general excellence of the other classes compensated for this deficiency. The four-

year-old hunters were exceedingly good. One of the best of the stallions was the well-known chestnut trotting horse, Shepherd F. Knapp, bred in America, and reputed one of the fastest trotters in the world. Some of the cobs were remarkably fine animals, exhibiting great symmetry and strength. The ladies' hacks were generally admired; and the animal for which Mr. Holmes took first prize was wonderfully perfect both in appearance and action. There were some really beautiful and finely-bred ponies, of which the best, according to the decision of the judges, was "Uncle Tom," the property of Mr. Richardson, farmer, of Willoughton, Lincolnshire. Amongst those who mounted some of the hunters was the well-known lady equestrian Miss Beverley, whose appearance was greeted with loud applause. The jumping was for the most part quite as good as in former years.

The treatment, too, of horses in a state of disease, and their shoeing, are too often subjects of much vexation and disquietude to country gentlemen. Except for the purpose of encouraging a very meritorious smith settled in the neighbourhood, it is much preferable for a gentleman to set up a forge at home, for which, taking into account agricultural implements, and ironwork required about the mansion, exclusive of horse-shoeing, there must be ample employment. As to "doctoring of animals," as it is ludicrously termed by common farriers, it is an absurdity, against which

every humane man ought to set his face. Nor is a man fully qualified for this department, any more than in the higher profession, merely in consequence of his anatomical knowledge and his diploma; to these he must add sagacity, and experience will do the rest.

In our day—the day supposed to be that of “Christianity and enlightenment”—the veterinary surgeons at Alfort fasten a living horse down with stanchions and pulleys, and let loose upon its palpitating body the scalpels and forceps of a dozen raw students, to hack, pick, and drag among the thrilling threads and vessels of life. In our day, as one may see in Leadenhall-market or the fashionable poulterers’ shops, the life is not out of birds before their feathers are stripped from their writhing bodies. Beasts of draught and burden that have faithfully served us are left foodless and thirsty in the knacker’s yard, standing fetlock deep in the blood and filth at which they sniff and shudder till the pole-axe is ready. Cattle are brought over to London by the steamships in such misery and horrible discomfort that rinderpest is natural enough without going far to look for its source. Rat-baiting is defended before magistrates as “respectable;” bull-fighting, once confined to Spain, is creeping northward through France. In fact, the list is only too long. Some people may say that it is sentimental to regard these needless agonies of created life with anger and shame; but that view



is disgraceful and devilish. Flesh meat is the rule, perhaps the necessity, of the colder zones; and while the order of nature is what it is, man will slay and eat the graminivorous creatures, and breed them for that purpose. Yet, to gentle natures, there is a wonderful, and even sad contrast between the domesticated and wild creatures in the cities and villages of India and those of Europe. Accustomed to a people which never takes their life—for whose food no living creature of any sort suffers—the cattle and birds among the Hindoos are tame beyond description. It is painful to see how soon the creatures lose this glad and bold confidence when the flesh-eating white man comes, and how utterly afraid of human beings every bird and beast is here at home. Perhaps that cannot be helped; but let us at least refrain from treating with wilful, merciless tyranny the mysterious and silent creatures which are so little lower than ourselves in the eternal chain of life. When a vile and plain enormity like the butchering of calves by inches is made public, let all that are manly and gentle denounce it, and strive to wipe it out from the list of unchristian “customs,” which are by no means confined to the King of Dahomey and his lake of human blood.

“Caveat Emptor” says, as a rule for the guidance of those who at any time wish to purchase horses, it may be as well to inform them that those which are advertized in the daily papers, nine times out of

ten, belong to horse-copers. They are sometimes represented as the property of a gentleman who is gone, or going abroad, if they are carriage horses ; and if hunters, of a gentleman declining hunting, to be sold under peculiar circumstances, a great bargain. Of course these horses are represented as possessing every good quality that a horse ever possessed ; the best references are offered ; in fact, everything is done or said to induce confidence. Only two years since we had the satisfaction of preventing a friend from falling into the clutches of one of these copers, under the following circumstances :—Our friend was a great sportsman, who resided throughout the year in the country, and was not at all conversant with any of the various iniquities that are constantly perpetrated in this great city ; consequently, he did not know what the term horse-coper meant ; he had never heard of this class of men. He was at this time in want of a pair of horses for a mail phaeton which he had just bought, and he mentioned that he had seen a pair of horses advertized in the *Times* which, from their description, would exactly suit him, the property of a gentleman residing in some square, and they were to be seen on referring to his coachman, who had charge of them, in a mews in the Edgware-road. The coachman was represented as having driven them for the last six months, and consequently could give every necessary information ; in fact, no advertisement could have been

expressed in more plausible terms, and my friend was going up to London expressly with a view of purchasing them. He was confident it was all right, as they belonged to some gentleman who lived in one of the best squares—a false address is one of the usual dodges. We immediately expressed our conviction that the horses belonged to some “coper,” and engaged to satisfy our friend as to the fact on our return in London; he was rather sceptical at first.

Soon after my arrival in London I went to a man who I knew was thoroughly conversant with all that appertains to horse-dealing transactions; in fact he was in the habit of buying and selling by commission. I showed him the advertisement; he immediately said he was certain it was a “coper’s,” as he knew the stables. I, however, wished him to pay a visit to the locality, merely to satisfy my friend. He accordingly went, and immediately on ringing the bell on the outside of the establishment, one of the most notorious of all the London copers forthwith made his appearance, and as this individual well knew the character of the man who had called upon him, he exclaimed with a loud laugh, “Why, you are not come to see these ’osses, are you?” “Well,” says my man, “I don’t wish to purchase them now I have seen you, but I should have no objection to look at them, merely to satisfy a gentleman who wished me to see them.” They were, as might be expected, regular “screws,”

although fine-looking animals. The stables in which horses of this description are exhibited are merely hired for the occasion, so that in the event of the duped purchaser returning in a day or two to make inquiry after any of the persons engaged in the recent transaction, no one is to be found ; all the doors are locked, and if any person happens accidentally to be in the yard, he professes to be entirely ignorant of those who sold the horses ; they were strangers to him ; he had never seen them before, and he has not seen them since. The dupe may knock and ring to all eternity, but no one will appear ; in fact the yard seems to be entirely deserted. The successful scene of action has been abandoned for a time for fresh quarters, as the same parties have several different yards in which they carry on the same game ; and as the owner of the stables generally “stands in,” he of course professes to be entirely ignorant of anything connected with the parties ; all he admits is that a “gentleman,” whom he had never seen before, hired his stables for a couple of days, and paid him for them.

The following is the weekly cost of the keep of a horse :—

Professor Low, in his “Elements of Agriculture,” gives this at 6s. 6d. ; Mr. H. Stephens, in his “Book of the Farm,” 6s. ; Mr. Gibson, Woolmet, 9s. ; Mr. Binnie, Seaton, 11s. 6d. ; Mr. Thomson, Hanginside, 9s. 6d. ; Mr. W. C. Spooner, in the *Agricultural*

*Society's Journal*, 4s. 9d.; Mr. Baker, Woburn, Bedfordshire, 9s. 8d.; Mr. C. Howard, Biddenham, 8s. 6d.; J. J. Mechi, Tiptree, 7s. 6d.; which gives an average of 7s. 11d.

An active and intelligent Agent of an extensive property will adopt piece-work as to labour, a system manifestly beneficial for the employer and the employed. In Holland a system prevails of giving payment for results, in addition to fixed wages; this excites zeal and vigilance, and works excellently. The Mayor of Haarlem, an eminent agriculturist, says:—"The steam plough is introduced, and over and above the regular wages a certain extra payment is made for each hectare which is pronounced to be well ploughed; the payment being divided between the engineman and ploughman and boy in attendance. The horsekeeper, over and above his fixed wages, has a payment for each living foal got from a mare; the cowkeeper has an extra allowance for each living calf got; the shepherd, an extra allowance for each lamb sold or living six weeks after it is born; the poultry-keeper an extra allowance upon each hundred eggs delivered to the housekeeper, and upon each hen or cock sold; and the dairymaid, an extra allowance for each lot of butter and cheese sold, without reasonable objection to its quality from the purchaser. Fines are imposed for neglect and irregularities, which are put into a common fund, and this is every quarter divided equally amongst all,



so that a common and mutual interest is thus engendered." If such a principle could be introduced into this country, it would no doubt be of immense advantage to all who farm their own land. The tenant-farmer might think his own vigilance and care a sufficient safeguard; but at all events, the subject is well worth the consideration of all practically interested in agriculture, and would, if properly introduced and carried out, lead to very beneficial results.

In a Bill brought forward by Mr. Scholefield last session, provision was made enabling a principal or employer in any concern to give to his subordinates shares of profits, and also imposing responsibility for losses, without making them partners. Such a principle would be of great importance in agriculture, for it is only gentlemen farmers and persons of income who can afford to make experiments; and yet it so happens, as could be too often proved, that labourers take no interest in the introduction of new implements, if indeed, through ignorance, they are not too often interested in their failure; and it is notorious that machine-makers are obliged in many instances to bribe the farm labourers to get them to work their machines successfully. Now, improvers of this class fail often in the execution of their plans for want of zeal on the part of the workmen to overcome difficulties, which only a direct interest will impart; and piece-work can only be carried out successfully under proper superintendence.

We find Mr. Chawner, President of the Midland Farmers' Club, making the following statement at a meeting in Birmingham, in June last, with reference to the relative position of the agricultural labourer and the owner and occupier of the land:—

“To any remarks that have been made on the subject, it has always been considered sufficient to reply, that supply and demand must govern the question of labour wherever it may arise. It may be thought that in these remarks I am contravening the principle I have contended for, viz., *the commercial principle*; but still I am of opinion, from a long experience, that there is more in this question than is dreamed of in some people's philosophy. Contrast the position of the farm labourer with that of all other labourers. Other labourers are generally working together under the same roof, and here the task of overlooking—the watching of labour—is easily and readily performed, and the comparative skill—the efficiency of each man's labour—is tested by a scale supplied by the labourers themselves. The farm labourers are of necessity scattered over a wide expanse of ground, where the watching of labour is rendered difficult, if possible, by the distant scenes of their labour. It is true, that a certain proportion of farm labour may be and is performed by contract; but still much remains to be performed in the routine of daily labour alone, and, therefore, the disposition of the labourer's mind towards his employer and his

task is a point of the utmost importance. Permit me to illustrate my meaning by adding two familiar instances. In the one case, where the labourer is looked upon by his employer rather in the light of a partner, in a certain degree, with the owner and occupier of the land, his position may be thus described:—He has a dwelling where he can bring up his family with decency and comfort; his money wages enable him to sustain and recruit his own strength, to share with his family a sufficient supply of plain and wholesome food, as also to afford some education to his children, looking with hope to their future—it may be one more advanced than his own; for I know no reason why the motto of the present day, ‘*Excelsoir*,’ may not be applied to the labourer as to other classes. This man goes forth to his daily task with a cheerful mind, willing to labour in that state of life to which it has pleased God to call him. Let us take the other instance, the man hired on the principle of supply and demand. Competition cuts down his money wages to an amount which makes his continued existence a problem. With insufficient food to restore the wear and tear of his daily work, he becomes careless of himself and his family, and then all the bitter consequences of a parent’s neglect become in his children patent to the world. With a sense of ill-treatment ever present to his mind, he shirks his daily task, feeling under no obligation to his employer. Contrast the two cases, and say, when

measured by the strict rule of economy, in which case is the labour the cheapest and the best? And so it will continue to the end of the chapter; until the agricultural labourer shall be looked upon in the light of a partner, to a certain degree, with the owner and occupier of his land, and shall feel within himself that he is receiving his fair share of the fruits of the earth which his labour in so great a degree helps to produce."

The "gang system," which has excited so much horror in the minds of all well-disposed persons, ought to occupy the attention of the Agents of estates. Some months ago the blue books on the agricultural gangs startled the public with the intelligence that, at a tender age, children of both sexes were banded together, and, for weeks at a time, were made to toil like serfs miles from home. Or, roused by daybreak, they must walk miles to the scene of work, labour from morning till night, and then wearily drag their limbs back again. They were exposed to wet, cold, fatigue, hunger. In many cases the result was premature death, or disease that enfeebled the victim for life. Nor was it the physical frame alone that suffered. Boys and girls could hardly remain long in the gangs without being morally ruined. While in the fields they were under the influence of a gang-master who was always ignorant, who was often a drunken, brutal savage, who habitually enforced his commands with oaths, and who too frequently strove to destroy every vestige of

modesty in the tender children. Hence, said the blue book, the gangs were the terror of every neighbourhood. When coming home at night, they filled the air with obscene songs. On meeting a by-passer they subjected him to insult or violence. If a girl went into a gang she was regarded as lost. No person would hire her as a domestic servant, and she was too often doomed for life to go through the same debasing round of hardship and immorality. Or, if she married, she made her home wretched, drove her husband to the tap-room, allowed her children to go about in rags, sent them into the gangs, trained them to become what she herself had been, and, after perpetuating the misery of which she had been the victim, ended her own days in the workhouse. Such was the testimony of the commissioners who were appointed to examine the system, and their statements have passed unchallenged. Why? Because they are true. Naturally, therefore, strenuous attempts have been made to provide a remedy for evils which would disgrace any civilized country, and which are doubly disgraceful to Christian England. Lord Shaftesbury has introduced a bill to prevent children under a certain age from working in gangs, and to prohibit boys and girls from working together. Let Agents, therefore, see to it that the horrible system be discontinued. Mr. Fawcett, the honourable member for Brighton, has brought in another bill of a more sweeping description. He would wish to extend



the factory system to farm labour. He forgets, however, that there is a great difference between factory and agricultural labour, and that a law which is suitable to the one case will not apply to the other. Mill work is steady. Farm work is fitful. Generally speaking, the one branch of industry is the same all over the kingdom, while the other branch of industry differs in every county. A cotton mill in Glasgow is conducted on much the same principle as a cotton mill in Preston. Certain crops which are grown in one shire, however, are not cultivated in others; the harvest is some weeks later in Perthshire than in Kent; and agricultural life in Yorkshire is quite different from what it is in Sussex or in Middlesex. In certain parts of the country juvenile labour is at times almost indispensable, whereas in others the lack of boys causes little hindrance to the field work. Hence it would be unwise to draw a hard line, which should mark the earliest age at which children should begin to work, and which should be applicable to all counties alike. We must have a shifting scale of age, determined by some local authorities, such, for instance, as the county magistrates. After all, however, this is only a point of detail, and we trust that next session Mr. Fawcett will resume his efforts to give the children of the farm labourers the same advantages as those of the factory operatives, and that England may not much longer have to endure the reproach of rearing a race of serfs.

Mr. E. S. Oldham, a Cambridgeshire employer, writes:—"So baneful, indeed, are its influences on the rising generation, that I believe it to be next to an impossibility for any girl who has worked a season in a gang to grow up into a *modest respectable woman*, or for a boy to be otherwise than *grossly sensual and profane*." But the most emphatic testimony to the demoralization produced by the gang system is borne by the vicar of Chatteris, the Rev. Michael Augustus Gathercole. This gentleman uses great plainness of speech. He says:—

Fornication and bastardy are so common that I seriously question whether any girls or boys are pure or chaste in mind or body beyond the age of seventeen or eighteen years; I mean of course the boys and girls of the ganging and labouring classes. I seldom marry any of them without being obliged to see the bride to be of larger dimensions than she ought to be. The parents have little or no control over their children, for many of themselves, after having left ganging in the fields, going after they are married into other houses with children in their arms, or standing at the corners of the streets or passages. Having been in the gangs all their lives, they know next to nothing of domestic work or management. They can neither make nor mend their husbands' shirts or stockings or their own clothes and the children's. Their houses are dirty, and their husbands, finding discomfort at home, are too often driven to the public-houses and those public nui-

sances the beer-shops, of which places there are, I believe, more in this parish for under 5000 inhabitants than for 17,000 in a low district in St. George's-in-the-East, London.

Many landowners are much opposed to early marriages. Dr. Stark gives us the result of an investigation he had been making as to the relative death rates of the married and unmarried in Scotland at different periods of life. He had discovered that between 20 and 25 years of age the death rate of Scotch bachelors in 1863 was double that of married men; that between 25 and 30 the deaths of the single to those of the married men were as 13·7 to 8·6; that the difference in favour of marriage is constant at every quinquennial period, and, though it decreases as life advances, it never disappears: in fact, "it is thus proved that bachelorhood is more destructive to life than the most unwholesome trades, or than residence in an unhealthy house or district where there has never been the most distant attempt at sanitary improvements of any kind."

Dr. Stark's statistics were generally accepted with surprise, but without cavil; and this no doubt encouraged him to try the result of another year's experience, which is given in the tenth report of the Registrar-General of Scotland, recently published. It is found, then, that the facts for 1864 corroborate those of the previous year, in demonstrating the greater mortality of unmarried than of

married men. Thus taking the mean of the two years' results, the relative mortality per thousand of married and unmarried men living at quinquennial periods of life was as follows:—

Ages.	Husbands and Widowers.	Unmarried Men.	Ages.	Husbands and Widowers.	Unmarried Men.
20 to 25 ...	6.26 ...	12.31	55 to 60 ...	26.14 ...	28.54
25—30 ...	8.23 ...	14.94	60—65 ...	35.63 ...	44.54
30—35 ...	8.65 ...	15.94	65—70 ...	52.93 ...	60.21
35—40 ...	11.67 ...	16.02	70—75 ...	81.56 ...	102.17
40—45 ...	14.07 ...	18.35	75—80 ...	117.85 ...	143.94
45—50 ...	17.04 ...	21.18	80—85 ...	173.88 ...	195.40
50—55 ...	19.54 ...	26.34			

The mean age at death of the two classes calculated for 1863 gave  $19\frac{1}{2}$ , and for 1864 19 years, in favour of the married men above 20 years of age.

Hence Dr. Stark finds it impossible to avoid drawing the conclusion that it is to marriage and the more regular domestic habits which attend that state that the lower mortality of the married men is attributable; and having thus established marriage as the condition of life best fitted for mankind, he moralizes on the remarkable way in which, after the lapse of thousands of years, “statistics have proved the truth of one of the first natural laws revealed to man—‘It is not good that the man should live alone.’” During two years the death rate of the celibate in Scotland has been in excess of that of the married; *therefore*, marriage prolongs life, and celibacy shortens it: this is the startling doctrine which is proclaimed.

A Land Agent should invariably discourage extravagant expenditure on all parts of the estate

under his charge, especially on the Home Farm. No doubt it is gratifying to a Bailiff's pride to exhibit fine teams, high-bred stock, costly implements, and handsome farm buildings. We know that many Bailiffs believe that their fame is promoted by the grandeur of the scale on which my Lord A or my Lord B conducts his agricultural operations under their management, without regarding in the least degree the essential point of expense? What does his Lordship care for money? His rent-roll is great, and he may better spend a great part of his income in collecting the finest breeding stock that the empire can produce, or in making the grandest experiments on his land, than in many other pursuits. Nay, they think, perhaps, that as long as their employers are able or willing to furnish them with the desired supplies, they are not only advancing their own fame, but promoting their employers' reputation, by spending profusely. In this they imitate the house steward, the butler, and the groom, who think it is for their master's credit that the highest prices should be given for everything wanted for domestic consumption, and a contempt shown for saving. The butler lets the wines flow as freely as he can, knowing that the cellar stock will be renewed whenever his report suggests the necessity for doing so. The head groom recommends the purchase of the finest horses he can hear of, and cares not a straw what they may cost—his pride is gratified by having a fine stud in



his master's stables. But is not this "wasting their master's goods?" and may they not justly expect, as the natural consequence, that he will one day call on them "to give an account of their stewardship," and dismiss them with disgrace? Economy, then, should be a great object with every class of land manager who is allowed to regulate the scale of expenses at his discretion.

The philosophy of little things, as bearing upon great results, ought to be well studied by those who manage land on account of others. One overseer with 20 men often gets more work done than another with 25, and that, too, when the workmen are equal in skill and physical power. The fault is not in the men, but in the management and the laying out of their work. The planning out of work to the best advantage requires thought, and the duties of every day should have been laid out systematically during the previous evening. Whatever some Agents may say, the fact is, that many estates and farms sustain greater loss through the immense amount of manual and horse labour thrown away by mismanagement than through low prices or poor crops. If a fair rate is given for piece-work, it is not the good workman who will object to the arrangement, but the man who either knows his inability or has a disinclination to earn an ordinary wage by his own exertions. Doubtless the Land Steward must possess a comprehensive knowledge of the prices that ought to be paid for different

kinds of labour ere he can enter into contracts, otherwise he may commit great errors, alike hurtful to his employer's interests and to those of the working man.

In fact all works and improvements should be executed under tender. Nothing of any importance should be done except estimates are first obtained. The following figures will illustrate most convincingly the advantage of the system :—

The Main drainage works Southampton—

Sibsey . . . . .	£10,083
Ball and Sons . . . . .	6968

The construction of new brick sewers for the Kensington Vestry—

Waggett and Barnett . . . . .	£2864
Williams Brothers . . . . .	1750

Building two farm steadings near York—

Pingar and Sons . . . . .	£2567
Hawks Brothers . . . . .	1954

Constructing road, trenching, and draining certain lands at Burrard—

Miles and Co. . . . .	£978
Williamson . . . . .	757

Even in the small matter of stationery and printing, the type and quality of paper being similar, how prodigious the difference in two estimates which we had occasion to get recently.

Five thousand circulars of three printed pages—

Partridge and Cooper . . . £15 3 3

Parkins and Gotto . . . 9 8 0

Five thousand order slips on tinted paper—

Partridge and Cooper . . . £3 12 6

Parkins and Gotto . . . 2 2 0

Whilst we have had a great deal too much to do with public business to feel wonder at such results, the unexperienced can hardly help feeling somewhat startled at such a remarkable difference.

As we have just said, all farm and estate improvements ought to be executed by contract, and such documents should be drawn up with the greatest possible care. Nine-tenths of the trouble growing out of building operations especially arise from violations of the terms of such instruments. When any deviation from a contract is contemplated, it should be just as carefully specified as it would have been if it had formed part of the first arrangement. This is the only remedy against a long bill of items, and against vexatious lawsuits. The following is an amusing illustration of the necessity of having contracts drawn out by competent men. A sea captain, about to start on a long voyage, entered into a contract with a builder for the erection of a handsome and commodious mansion during his absence. Everything was to be done strictly according to

contract, under forfeiture of a large sum. The captain sailed and returned. His new residence stood before him in ample and imposing proportions, and he confessed himself highly delighted with the exterior. But when he entered and wished to ascend to the second floor, he found that there were *no stairs*. Taken aback by this strange discovery he thought himself duped, and a gale was fast rising. This, however, was soon allayed by the production of the contract, in which there was not the least provision made for stairs in any part of the magnificent building! "Give me your hand, sir," said the captain. "All right; you've stuck to the contract, and I like it." Few, however, would have approved of such fidelity. In fact, nothing of any moment should be undertaken without a written specification of the work, and the terms on which it is to be executed. In illustration of the evil of trusting to verbal agreements, however plausibly and unsuspectingly expressed, we give the following example:—

*"To the Honourable George Wentworth Fitzwilliam and Henry Parkinson Sharp, Esquire.*

"GENTLEMEN,

"I approve of the course you propose to adopt, which I understand has also the sanction of the North British Insurance Company, of naming Mr. James Forbes Beattie, of Aberdeen, North Britain, and Mr. Duncan George Forbes Macdonald,

of Parliament Street, Westminster, as the two valuers to allot for sale the Rosehaugh and other estates comprised in the trust dispositions, as well as to fix the price or prices at which they shall be sold, and further that, in case of their being unable to agree as to the allotment or prices, of your employing such third valuator as they may choose; but it is quite understood that this letter is a mere expression of my wishes, and must not in any manner prejudice the powers vested in you by the trust disposition.

“(Signed) JAMES J. R. MACKENZIE.

“ Inverness, *November, 29th, 1861.*”

Under this minute, coupled with a verbal agreement, the business was undertaken by Mr. Macdonald and completed in June, 1862. Yet the agreement was afterwards repudiated. After every effort had failed to bring about an amicable arrangement an action was commenced, which has resulted after an expensive and protracted inquiry, in the following award:—

*In the Queen's Bench.*

Duncan George Forbes Macdonald *v.* The Honourable Wentworth Fitzwilliam and Henry Parkinson Sharp.

In pursuance of the order of reference made in this cause by the Honourable Mr. Justice Crompton, dated the 9th day of May 1864, I do find, certify,



and award for the Plaintiff for the sum of two hundred and twenty-seven pounds seventeen shillings and sixpence over and above the sum of fifty-seven pounds four shillings paid into Court.

And I direct that the Defendants do bear and pay the costs of the reference and of this award.

Dated this *25th day of July*, 1865.

H. J. HODGSON,

One of the Masters of the Court  
of Queen's Bench.

Whilst we deprecate the waste of the trust funds we entirely exonerate the Hon. Mr. Fitzwilliam from having taken any part in the affair. Other instances could easily be cited to show how important it is to have full and complete written agreements in all cases; but we are content for the present with the example just given.

Time was when a verbal contract would have been considered binding; but such is not now the case. If we in the present day desire to be safe from loss or injury, we should always have a written contract. The truly high-minded and honourable man regards with abhorrence anything that wears the appearance of duplicity. His word is as good as his bond. He stands to his bargain, and is faithful to his contract. He is like the good man described by the Psalmist,

“Who to his plighted vows and trust  
Hath ever firmly stood;  
And though he promise to his loss,  
He makes his promise good.”

He would rather at any time relinquish something of his lawful rights, than engage in an irritating dispute. He would rather be the object than the agent in a dishonourable or crafty transaction. When one told old Bishop Latimer that the cutler had cozened him in making him pay two pence for a knife not worth a penny, "No," said Latimer, "he cozened not me, but his own conscience."

Misunderstandings are constantly arising between Agents and tenants in consequence of the absence of any written contract in regard to improvements or buildings. While Agents have usually too much upon their minds to remember verbal promises, farmers generally recollect them very well, yet, if they insist on their fulfilment, and have no writing to prove their claims, the good feeling which ought to exist is sure to be affected. For mutual advantage, therefore, both the proprietor and the tenant, or the Agent and the tenant, ought to have every agreement specified in writing, and the cost of carrying it out distinctly stated.

The Agent should make it his especial duty to instil prudent habits into the minds of the people residing upon the estate. He should very strongly impress upon the labouring population the value of money and cash payments. Credit, the great promoter of commercial enterprise, is the bane of the working man. The purchasing power of twenty shillings a week on credit is certainly not more

than sixteen shillings cash down, because the credit prices are so much higher. It makes a great difference in comforts and character whether a man buys his goods at the shop as he wants them, and pays for them on the Saturday night, or, whether he carries the money in his hand and pays for them on the spot. In one case he will always have the feeling of being in easy circumstances; in the other, he will always feel that he is a poor man; yet, in both cases, he will have the same income, and spend the same, except that, when he has the ready money, he can go to what shop he pleases, and so make his money go much further; and the shop-keeper, too, is more gratified to see him and thinks better of him. Now, all this difference is made by just contriving to have one week's pay forward instead of backward; to live, not one week under another, but one week over another. The effect of debt upon all people is to produce direct moral degradation. Lying, the parent of all other vices, is employed for the purpose of postponing payment. Excuses are at first made with some kind of compunction; but that soon wears away, and, ultimately, merit is claimed for skilful deception. The next step in dishonesty is scheming to avoid payment altogether, and then by any kind of cunning to obtain goods on credit, without the least intention of ever discharging the debt. It is easy to conceive the downward tendency of such a course. Self-respect soon becomes obliterated, and

public opinion disregarded. With the struggle to get on from day to day home becomes neglected. The children are dragged up in filth and depravity, and the female portion often waste more time in running after charitable doles than would suffice to earn double their amount.

It is frequently contended that working people can do but little in the way of saving, their scanty earnings being barely sufficient to meet their daily wants, and preclude the possibility of making provision for the future. But it should be recollected that comfort, or absolute poverty, may result from a very slight difference in management; a few weeks' earnings in advance, or a similar amount behind-hand, will do it all. A year's saving, at the rate of one shilling per week, will work wonders, and many people with very trifling incomes do by such means contrive to place themselves in a comparatively respectable position. We frequently find, with families of equal means, some that always appear clean, decent, and comfortable, while others are constantly dirty, ragged, and devoid of common necessities. In the one instance there has been a due appreciation of the value of money; in the other, a disregard of prudent management has caused the incubus of debt to curtail the productive power of income.

It may be contended that working people are always liable to periods of distress from the uncertainty of employment and other casualties, which

compel them to incur debts that, with their ordinary limited means, require a lengthened time to discharge; that the difficulties they have to encounter may not arise from any deficiency of prudence, but from unavoidable circumstances. It is very true that such circumstances may and do occur, but they are not usually the sole causes of distress, as we commonly find families living in a state of poverty, and even in squalid misery, with whom employment is constant, and their income quite sufficient for decency and comfort.

In the reformation of people somewhat advanced in life success is not frequent; but with young persons a great deal may be done. If they commence their career rightly, particularly in the matter of saving, they are not likely to deviate from it in any especial degree afterwards, or to commit any great indiscretions. We know of a poor orphan boy who was farmed out at a few shillings per week, and in his bringing up underwent great privations—sometimes being compelled to exist upon a small piece of bread and a raw turnip for dinner. He was so impressed with the hardship of his early life that, to prevent a recurrence of such suffering, he formed a steady resolution that when he worked for his living, whatever his earnings might be, he would always save a portion. He became an agricultural labourer, and, although the wages of that occupation leave but a slight margin after defraying necessary expenses, he con-



trived systematically to carry his design into practice. He lived as decently and comfortably as other people of his class, yet the saving was regularly effected. The result was that at fifty years of age he had acquired sufficient to enable him to live after his accustomed manner without labour. This was done by dint of continuous saving from a low amount of earnings, and is therefore remarkable; but it frequently happens that people who succeed in realizing large fortunes begin by saving, and then by applying the capital thus acquired to some trade or calling. It requires a strong determination to begin, but when a little money has been saved subsequent additions are easily effected.

Money, which used to be called "the root of all evil," is certainly the most powerful moral agent we possess, particularly when of the possessor's own acquiring. This is shown very much by the character and conduct of many individuals among the working classes. The moment a man has saved a little money he begins to feel that he has a position in society, and must, therefore, maintain an uniform respectability of behaviour. Hence the rule with such persons is to have their household duties performed in a clean and orderly manner. Their conduct must be well regulated, and the duties of religion must be by no means neglected, for it must be remembered they have a character to preserve. Their means of living also

become much improved by their being able to purchase for ready money. Working people who have a little money in advance thereby acquire comparatively an independent status, and can sell their labour to the best advantage. They can afford to remain a short time unemployed, rather than submit to inadequate remuneration. They obtain, therefore, the highest rate of wages; and are seldom out of work, because, with the practice of saving, they necessarily become steady in their habits, and can be depended upon to do their work in proper time and manner. People must always be governed by the stronger motive, and, as the vices are expensive, the saving man is preserved from indulgence in evil propensities. Such a man is invariably punctual in paying his rent and discharging his other obligations, as he exults in the proud position of being no man's debtor, and thus win the palm of true honesty and virtue.

“ Who is the honest man ?

He who doth still and strongly good pursue,  
To God, his neighbour, and himself most true.”

Every one is surprised, on examining the annuity tables in common use in the offices of Life Insurance Companies, at the astonishing aggregate amount of the daily expenditures of small sums, compounded with interest, and finally summed up at the termination of a long life. The following abstract will give some idea of it :—

*Table showing the aggregate Value with Compound Interest.*

Per Day.	Per Year.	Amount in 10 years.	Amount in 20 years.	Amount in 30 years.	Amount in 40 years.	Amount in 50 years.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1d.	1 10 5	19 2 7	50 5 9	101 0 10	183 14 4	318 7 8
3d.	4 11 3	57 7 9	150 17 3	303 2 6	551 3 0	955 3 0
4d.	6 1 8	76 10 4	201 3 0	404 3 4	734 17 5	1273 10 8
6d.	9 2 6	114 15 6	301 14 6	606 5 1	1102 5 11	1910 6 0
8d.	12 3 4	153 0 8	402 6 0	808 6 9	1469 14 7	2547 1 4
1s.	18 5 0	229 10 11	603 9 1	1212 10 2	2204 11 11	3820 12 0
2s.	36 10 0	459 1 10	1206 18 2	2425 0 4	4409 3 10	7641 4 0
4s.	73 0 0	918 3 9	2413 16 4	4850 0 8	8818 7 8	15,282 8 1
8s.	146 0 0	1836 7 5	4827 12 7	9700 1 5	17,636 15 4	30,564 16 2
16s.	292 0 0	3672 14 10	9655 2 2	19,400 2 10	35,273 10 8	61,129 12 4

By reference to the preceding table it appears that, if a labouring man or a mechanic unnecessarily expends only 3d. per day from the time he becomes of age to the time he attains the age of threescore and ten years, his aggregate loss, with interest, amounts to £955 3s.; while sixpence saved daily would provide a fund of nearly £2,000, sufficient to take a nice farm. There are few mechanics who cannot save daily by abstaining from the excessive use of tobacco, ardent spirits, visiting theatres, &c., two or three times the amount of 3d. per day. The man in trade who can lay by about 4s. per day will find himself similarly possessed of upwards of £15,000. Few people estimate the large sums to which the yearly saving in personal and household expenses will accumulate. Two thousand pounds a year is not an uncommon expenditure for merchants in this and other cities. Half a century ago £200 would have been considered sufficient. The difference between

these two sums for fifty years, with the accumulation of compound interest, reaches the enormous amount of £376,824. Extend the time eleven years, and this sum, great as it is, becomes doubled. The true value of money consists in the rational use of it. Economy becomes a vice in the miser, while liberality sliding into extravagance becomes a vice in the spendthrift. The golden mean lies between these extremes. By applying available gains for the procurement of rational comforts and enjoyments, and for advancement in moral and intellectual culture, we at once increase our private pleasure and further the public good.

We take it for granted that when pecuniary debts are contracted, the borrower means to pay them sooner or later. As a general rule, their burthen is least the sooner they are cleared off. Interest, usury, dependence, lawsuits, and costs of all kinds that hang over standing and litigated debts add in this country, if we could but get at their total for a single year, thousands of pounds to the original obligations. Friendships are broken because of debts; forgeries and murders are committed on their account; and, however considered, they are a source of cost, annoyance, and evil. They break in everywhere upon the harmonious relations of individuals and society; they blunt sensitiveness to personal independence; and, in no respect that we can conceive, do they advance the general well-being. The agents of the rich have no excuse for

not paying as they go on, though, to their shame be it spoken, they are more often the ones to cause misery and ruin by the extensive credit they insist upon in their business transactions. By withholding the honest dues of the labourer, the mechanic, the merchant, and the professional man, all comparatively poor, they force these classes into indebtedness until the community becomes a tangled net, whose meshes are standing accounts, notes, bonds, and mortgages, suits at law, judgments, and executions. If those who are eminently able to pay as they go on were to be just and do so, the credit system which now makes one-half of society dependants and slaves, would be in a great measure swept away. The middle-class man and the poor man are driven to the wall by it; they can be pushed and pursued with impunity; but your man of means, your rich man's agent, who dares to remind him of a debt? No one who observes and reflects on this subject can deny the truth of the picture we have drawn. The evils of the credit system, which now pervades every department of business and all the trade intercourse of society, are great and overwhelming. The poorer classes feel it most especially. The mechanic, the labourer, and the tradesman, with little or no capital—as is generally the case—how can they succeed in enterprise, or in living, even, if they are not paid as they go? If they are paid, they too can pay. The reform, therefore, must begin, not like most others, at the bottom of the scale, but at the top—



with the rich. Let them incur no debts to those whom they employ or with whom they trade, and then the classes below them in means can live free from debt. Debts are curses, and perhaps the greatest under which society groans.

Agents should make every effort to induce landowners to have as few public-houses on their estates as possible. They are dreadful temptations. They retain or withdraw every man who frequents them from his home and his family, which ought always to be the centre of his thoughts and affections; they encourage habits of idleness and irregularity, and destroy that frugality and forethought which, in all ranks, are invaluable, and which amongst the lower orders are the source of almost every other virtue. The ingredients now used by brewers make malt liquors, to most persons, a less agreeable drink than formerly; and many have been tempted to dram-drinking, which is sure to be followed by a terrible state of misery. To the sad custom of resorting to the public-house on all occasions may be traced much of the poverty and domestic unhappiness which now afflict so large a portion of the labouring classes.

It is always useful to think over the causes of any failure, says an able writer. The doctor learns his noble profession by carefully studying the causes or origin of any disease; he is thus enabled to suggest the means of prevention and to prescribe a cure. Now, as we travel through life, we all meet with men who are never successful in anything

they undertake—persons who live upon the labours of other men, either supported by their relations or the parish. Now this page of our little work we shall devote to the labourer, and only dwell upon him and his best interests. If we take a walk amongst our cottage neighbours, we find two classes of labourers—one class who are living in comfort, and the other who are never out of some misery or other. Let us direct our attention to the last class, to the men who always manage to go down-hill. These include one great portion of the community—the idle, the thoughtless, and the dissipated. They are composed of those who never to any useful purpose remember that no man can prosper in life if he spends more or even quite as much money as he receives. Now let the labourer clearly understand this—the man who earns 20s. a week, and only spends 19s., preserves his independence and prospers; but if he spends 21s. he certainly becomes poor. Yet this is the great cause of half the poverty of the world. You will always find some fine specimens of these down-stairs travellers in the Union house or round the fire in a beershop. They, it is true, console themselves by conjuring up a variety of excuses for their poverty, such as “want of luck,” or the reform of some public law, or, if they are natives of Ireland, it is “the repeal of the Union.” Now such hollow excuses as these will not satisfy our readers. They are well aware that the way to prosper is to live within their wages, and

that the way to improve that income is to make one's self worth more money to his employer. This is to be easily done by every one. For every labourer can be careful of his master's interests—can be sober, can be honest, can improve himself as a workman, can live within his income. And that income, with the aid of common sense, is pretty certain to increase with an increase of knowledge; for that knowledge, as we have always said, is another name for good wages. Strive, then, we say to our friends the labourers, to be ever trying to learn something useful, and try earnestly. Do not listen to those who tell you that those who employ you are anxious to keep you poor. For your employer well knows that a good labourer is cheap at high wages, when a bad servant is dear at the lowest. He feels as Mr. E. Fellowes did when at the Blofield meeting he observed, that we must well study the interest of the labourer, his happiness and comfort; we must look to his cottage; we must house him well and comfortably; we must attach him to the soil on which he lives, to the cottage in which he resides, and to the garden which he cultivates; we must make him feel that he is a part of the farm on which he works, and we must give him an interest in remaining at home in preference to seeking work elsewhere. If this be done, my belief is, that we shall, in a great measure, prevent our labourers going into distant districts. We feel that it is indispensable, and not only our duty, but our interest, to watch narrowly the welfare, the happi-

ness, and the comfort of the labouring class. Depend upon it they are the real friends of the labouring class who look after their moral and social welfare and their mental improvement: those are not the friends of the labouring class who will instil into their minds ideas and notions which they have not the learning to understand, nor the keenness of perception to see that they are fallacious. And then as to emigration, which is often urged upon the labourers and the young farmer's attention, Mr. E. Little was not far from the real facts of the case when he remarked, on a recent occasion, that whether a man emigrated or stayed at home, untiring energy and perseverance were indispensable to success. Whether a farmer's son were sent abroad with a few hundred pounds in his pocket, or whether the same amount was entrusted to him at home, without intelligence, industry, and perseverance, the money might just as well have been thrown into a ditch. Our parting advice then to the labourer is, take care of your wages, your family, and your home, and then you will never be a member of the class of the "ne'er-do-wells" or the "unlucky." You will find in our "Hints on Farming" many facts with regard to poultry, potato, and other root-planting, deep-stirring the soil, &c., which may be useful to you in your garden and in your cottage; and if we find that any suggestion of ours has helped to bring comfort around the hearth of the agricultural labourer, we shall indeed feel amply rewarded.

Agents should be especially careful as to whom beer and spirit licenses are given on the estates under their charge. They should make certain that the respectability of the publican will guarantee the genuineness of these beverages, since adulteration is almost universally pursued. In fact malt liquor is the only healthy and invigorating beverage within the reach of the working classes; the importance, therefore, of its being sold in a pure state is incalculable. Dr. Hassall gives us, as the result of his examinations, that in nearly all the stouts and porters salt was present, often in considerable amount. In some of the samples cane-sugar and treacle were likewise present. There is reason to believe that the variation of strength would have been still more considerable had the samples been procured direct from the several breweries, instead of, as in most cases, from the brewers' taps. This diminution of strength in the beer purchased of publicans is only to be satisfactorily explained by the addition in many cases of water, this addition being no doubt sometimes practised by the publicans and other retailers of malt liquors. The addition of water constitutes the principal, but not the only adulteration to which these beverages are subjected. Thus the addition of water reduces the strength, flavour, and colour to such an extent as to necessitate in some cases the further adulteration of the beer, and this is usually effected by means of a very coarse



description of brown sugar containing much treacle, and known as foots, and salt.

The quantity of salt contained in porter is often sufficiently large to communicate a perceptibly saline taste to the mouth. The salt is used by the brewers in the following manner:—It is first mixed up in a tub with flour—usually wheat flour—and the mixture is cast by handfuls over the surface of the wort in the cooling vat. It is said to assist in the preservation and fining of the wort, and it is alleged that these are the only purposes for which it is employed by the brewer. The three usual and principal adulterations of porter consist, then, of water, by which its strength is reduced and its bulk increased; and sugar and salt, whereby its colour and flavour are in a measure restored. But there is good reason for believing, from evidence given before a recent Committee of the House of Commons on Public-houses, of which Mr. Villiers was the chairman, that other adulterations are practised, and that sulphuric acid, or oil of vitriol, salt of steel, or sulphate of iron, and *coccus indicus*, are likewise not unfrequently used. We believe the labouring man is defrauded to an extent of which the rich man can hardly conceive, in the articles with which he is able to furnish himself out of the proceeds of his daily toil; he is more exposed to imposition from adulteration than any other persons. There is, in fact, no doubt that poisonous substances are frequently used by publicans for the

purpose of causing a species of inebriety which should be due to alcohol; it creates a feeling of intoxication without the previous excitement which alcohol produces; it knocks you down, so to speak, without previous exhilaration, a state of inebriation more prejudicial than that which is produced by alcohol; for though alcohol produces intoxication, it does not disorganize except when taken in immoderate quantities; it does not act so fatally as poisons would act.

Out of 38 samples of gin analyzed by Dr. Hassall, he found that two contained oil of cinnamon, or probably of cassia. Seven of the samples contained Cayenne pepper, some of them in very large quantities, so that the syrupy extract left on evaporation possessed a burning and fiery taste. In no case was sulphuric acid detected, its absence being sufficiently shown by all the samples being neutral to test paper. Most of the samples contained combined sulphates, derived from the water and alum employed in their adulteration and clarification. In some few cases, possibly, the combined sulphates may be derived from white vitriol, white copperas, or sulphate of zinc, which I have the authority of a gin distiller for stating is commonly used, when gin has been diluted with water, for the purpose of causing it to 'head,' as it is technically termed. There can scarcely be a doubt, that whatever may be the evil consequences of drinking gin, those consequences are materially augmented by the use of these mix-

tures. I think no human stomach could stand the combined influence of alcohol and Cayenne pepper.

“Pure gin should be made of alcohol flavoured with juniper berry; but I believe there is very little gin made in so simple a manner as that; all gin almost is flavoured with some special preparations called gin flavourings; I believe all distillers use these gin flavourings. I am told that many manufacturers obtain very strong spirit from raw grain, and then flavour it and sell it as gin.”

With reference to rum, Dr. Hassall says:—“Here again, then, we have evidence of a second adulteration calculated to prove injurious to health. It appears from the analysis of 19 samples of rum, that the strength of the samples varied from 25·61 per cent. of alcohol to 47·28 per cent.; that is, that some of the samples were nearly twice as strong as others, and consequently of nearly double the value; also that six, or nearly one-third, of the specimens were adulterated with cayenne, the extracts left on the evaporation of the spirit being exceedingly fiery and pungent from the presence of that substance.”

“Wine,” adds Dr. Challice, “is an absolute necessary for the poor when they are recovering from sickness; they have no means of getting pure wine; the adulteration of it is fearful. I have seen many instances in which, when I have recommended port wine, and it has been procured at public-houses, instead of acting as a wholesome stimulant and a

restorative astringent, it has produced pain, acidity, griping, irritation, and mischief, instead of good. It is a matter of notoriety, I believe, that a composition is sold as a substitute for port wine.

“I believe the astringency imparted to the liquid is by alum; I believe there to be an infusion of log-wood, also sloe-juice and sugar; it is a chemical combination entirely different from port wine; it does not taste like it; the taste is sufficient to deceive a poor person; the poor have a great craving for wine; they believe it is a luxury that will restore them to health.

“There is no exaggeration in saying that numbers of invalids, delicate women, and tender children have fallen victims to adulterations of food, drink, and drugs. Paralysis has also been clearly traced to this cause; and the universal diffusion of indigestion owes its origin very largely to the effect of the dangerous adulterations of our food.”

We think, with such testimony before us, the desirability of having respectable publicans on any property is obvious. For what can be a greater comfort to the poor man than to know that what he drinks is unmixed with baser matter?

Moreover, it is of importance to have a well-conducted inn on estates of considerable extent for farmers' and other local meetings. Englishmen are proverbial for their love of good cheer. The late popular writer, Douglas Jerrold, said, “That if the world was to come to an end, he had no doubt that

a few Englishmen would meet together and find some little corner wherein they could have a good dinner to celebrate the event." The landlord should invariably be the stamp who is always willing to oblige and ever ready to meet the wishes of his customers. He should be a good caterer for the general public. In fact the Agent should take care to have "the right man in the right place." Boswell, in writing to Dr. Johnson, in 1776, says, "There is nothing which has as yet been contrived by man by which so much happiness is produced as by a good tavern or inn." A good old clergyman wrote, many years ago—

"Whoe'er has travell'd life's dull round,  
Wheree'er his stages may have been,  
May sigh to think he still has found,  
The warmest welcome at an inn."

George Combe, the author of "Dr. Syntax," wrote—

"Along the varying road of life,  
In calm content, in toil or strife,  
At morn or noon, by night or day,  
As time conducts him on the way,  
How oft doth man by care oppress'd,  
Find at an inn a place of rest."

Again he says—

"Where'er his fancy bids him roam,  
In every inn he finds a home ;  
Will not an inn his cares beguile,  
Where on each face he sees a smile?"



It is very desirable that Agents should establish general stores on the estates under their charge, for supplying the poorer families with, at least, the common necessities of life at fair and reasonable rates. It is notorious that country retailers absolutely rob the poor by their outrageous charges. The "truck system" is only useful and excellent when conducted under the watchful eye of the Agent. We know that an immense amount of good has been effected by such institutions and co-operative societies on many properties in England and in Scotland. It is really quite astounding to mark the difference of prices in establishments of recognized respectability, even in London. The following communication from Stafford House illustrates this very plainly. The rates are taken from bills paid by the Duke of Sutherland's house steward about two years since:—

		West-end Shop.		Mr. Robson, 32, Lawrence-lane, Cheapside.		Difference per Cent.
		s.	d.	s.	d.	
Almonds .....	lb.	3	6	1	10	91
Cloves .....	lb.	5	0	1	6	233
Cinnamon .....	lb.	10	0	3	0	233
Mace .....	lb.	10	0	3	0	233
Nutmegs .....	lb.	10	0	4	0	150
Pepper, white .....	lb.	3	0	1	4	125
Pepper, black .....	lb.	2	0	1	0	100
Ginger prepared...	lb.	5	0	1	9	185
Ginger, whole .....	lb.	3	6	1	6	133
Pearl Barley .....	lb.	0	10	0	1 $\frac{3}{4}$	471
Salt.....	bushels	4	0	1	0	300
Salt.....	bay	0	4	0	0 $\frac{3}{4}$	433
Salt.....	baskets	0	9	0	3	200
Sago .....	lb.	0	6	0	2 $\frac{1}{2}$	140
Semolina .....	lb.	1	0	0	4 $\frac{1}{2}$	166
Tapioca .....	lb.	1	0	0	6	100
Vanille.....	sticks	2	0	0	4	500

His Grace's steward is not aware what rates the same West-end shop now charges, as it has not since been patronized. Mr. Robson's rates continue about the same, but to them must be added his commission, which, including packing, carriage, &c., does not exceed ten per cent. In comparing the above rates particular care was taken that the qualities and quantities agreed.

The Duke of Sutherland received a great deal of well-merited praise when, a short time ago, he publicly set his face against the pernicious practice of tradesmen giving discounts or percentages to his domestic servants. His grace now equally deserves commendation and the thanks of all classes for publishing the above prices in the press for bringing about domestic revolution, and for having discontinued his patronage to the extravagant West-end shop. It is thoroughly characteristic of the Duke to be kind, just, and, indeed, liberal to all, but never to submit to wrong, in whatever form it may crop up.

Largess was known so long back as the Saxon days in England; but while this has, to a great extent, been discontinued, the plan of commission has wonderfully increased, and it is a fair question, looking at the numerous irregularities which have been recently disclosed, and the greater and more numerous frauds which have been concealed, how far the modern unlimited system of commission is a safe and equitable means for purchase or sale.

Discount, in its original form, was merely a deduction for prepayment. Commission was an allowance or payment to a trusted and commissioned assistant in business, the agent holding a warrant or commission by which a trust is held. In the modern use of discount, however, it has become a sliding scale by which prices are arbitrarily raised or lowered; while a commission is often paid to persons who have no warrant, and are frequently not trustworthy. The introduction of the system of commission, in order to remunerate the zealous activity of recognized assistants, was an easy mode of sharing profits with those who find the labour and intelligence in business; but the same allowance to all comers has introduced a new feature in modern business, whereby professional men and numerous birds of passage have grasped at the earnings of the regular worker; this system has introduced a recklessness as to the credit of persons trusted, and an indifference as to the ultimate profit in the transactions, which is fatal to healthy and lasting trade.

The truth of the matter is that tipping servants has for some years past been steadily on the increase, and at the present time a head servant in an important establishment thinks nothing of insisting on a commission of ten per cent. on the amount of his or her master's bills. If a tradesman refuses to be a party to such transaction it is the easiest thing in the world for a housekeeper, cook, or

butler, to represent the tradesman as inattentive, or his goods as of inferior quality; and if the master or mistress does not listen readily to such misrepresentation, the best tea or coffee ever imported may be spoiled before it is sent to table. It is to be hoped that the excellent example set by the Duke of Sutherland may be followed by many others of the nobility and gentry, so that families of every class may get groceries and provisions at fair prices.

We think that Agents on estates ought to establish weekly markets where small towns or villages exist, especially in Highland districts. In contemplating such districts, particularly in Scotland, the first thing that strikes one is the isolation of the dwellings. Hamlets and miniature towns widely separated; main roads insufficient and out of repair; bye-roads almost impassable. Whatever scattered portions of population are to be found, it would surely be advisable to connect them more closely, so as to afford them opportunities of interchanging, not only commodities, but sympathies, opinions, information, and improvement, and to multiply the means by which human interests act and re-act upon each other. To help forward these benefits, we do not hesitate to point out to all classes the immense importance of establishing weekly markets. What is needful for a large town is proportionably good for a small one. Industry is quickened to anticipate wants; new wants are created which are

speedily supplied; and every country cottage contributes to the comfort of every town habitation. At present the state of things in some places is deplorable. Poor cotters must buy meal and other commodities from the neighbouring farmer, who frequently charges more than the ordinary market price. The country shopkeepers, not kept in check by the competition of stated markets, charge what they choose, by means of credit prices; and they are themselves an unthriving race from the want of markets, which always bring to shops a confluence of the best customers. Poor persons who have country produce to sell lose whole days in hawking it about from house to house; and thus idle habits are engendered in the search of chance sales. But, above all, society stagnates where no steadily and quickly recurring markets are held. Unlike other projects, the establishing of markets demands no present outlay. All that is required is to fix upon a central position for holding such gatherings on the most suitable week day, and to invite buyers and sellers to come together. The vicinity of a good market, where every kind of agricultural produce will always find purchasers at a fair price, greatly adds to the value of a farm, especially if good roads lead to it; and the advantage is the greater if it be a populous town, which not only consumes much produce, but also supplies various kinds of manure which may be brought back by the teams which have carried the produce to



market. It is this which so much enhances the rent of land near London and all great cities, and makes agriculture there approach nearer to horticulture, which entirely depends on extraneous manure.

The value of any article when sold by a private transaction between two individuals, is measured and determined by the relative circumstances of each. The price or general value between the seller and a larger circle of purchasers, is determined at a local market, and the larger and more open this is, the more nearly do we approach to the real value of the article. If there are many markets for an article, its price will of course vary according to the local circumstances of each; but it is quite clear that the more the means of transport are increased, accelerated, and cheapened, the more nearly will its value in the different markets be equalized; and if there be no artificial obstruction by law, or otherwise, to impede its being freely transported from one to the other, the difference in its value in different markets cannot much exceed for any length of time the cost of its carriage from one to the other. Hence the inevitable tendency of improving and accelerating the means of transport is to equalize prices throughout the whole extent of country in which it takes place. Before the introduction of roads into a country, one province may be starving from a dearth of provisions, while in another, not far off, they may be so

abundant as to be going to waste, while the expense of transporting them from one to the other may be so great as to make it impossible to do so. It is said that on one occasion in Spain the inhabitants of one province were dying of famine, while in another there was a superabundance, and it was found cheaper to import corn from America to the starving province than from another part of the same country. Exactly in the same way the introduction of turnpike roads, and afterwards of railroads in England, has had the effect of raising the price of all sorts of agricultural produce in the distant counties, and depressing it in those near the metropolis; and the introduction of steam navigation has raised the rental of the remote parts of Scotland many thousands of pounds annually.

The Hon. Samuel Laing, M.P., gives an interesting account of institutions which exist in Norway. He calls them aptly Corn Banks. In that thinly peopled country, there are no dealers or weekly markets attended by purchasers, who buy at one place and sell at another. If the farmer has any grain to spare, he can do nothing with it unless he happens by chance to find consumers on the spot. To remedy this inconvenience, magazines are established all over the country, to which the farmers take their surplus grain, and for the time it remains he receives at the rate of one-eighth of increase per annum, or  $12\frac{1}{2}$  per cent. If he deposits eight bushels, he can take out nine at the

end of twelve months, or in that proportion for shorter periods; and he is charged at the same rate of one-eighth per annum for any portions of his quantity he may take out. If he overdraws his account, or had none deposited, but receives a quantity in loan, he pays for such advance at the rate of one-fourth of increase per annum. Thus, if he takes eight bushels, he pays back ten at the end of twelve months, or at that rate for the time he has the loan.

Few things are so bulky as corn: a sack weighing 240lbs., when brought to market, may be worth a guinea or thirty shillings; but if it is carried fifty miles to a market, the net value will be much reduced; and if at that market there is no demand beyond what is required for the immediate neighbourhood, and no means of exportation, a very small surplus will glut it, and reduce the price still lower. The nature and situation of the markets are consequently a most important consideration in any agricultural enterprise. Where markets are very distant, the only profitable produce is live-stock, which can be driven a long way at a small expense. All countries, however fruitful the soil, which are thinly peopled, and have no ready markets for corn, must necessarily remain in pasture or be uncultivated. An increase in the population and the establishment of manufactures gives rise to an increased number of markets, and brings more land into a state of profitable cultivation as arable

land. If a regular supply of food is essential in a manufacturing population, the demand for it causes more to be produced. A regular supply to the markets keeps prices regular, fluctuating only according to the abundance or scantiness of the crops. If a country is very well peopled, and thickly studded with markets, it may be that all the land in it can be let at a good rent. But if we suppose it of indefinite extent, and only partially occupied, it is quite evident that in the descending scale we shall arrive at some land in which the circumstances are so unfavourable ; that is, the cost of production is so great, that it will only just be possible to cultivate it with a profit, and beyond that any cultivation beyond what may be necessary for the actual wants of the persons living on it must cease. The point where this will occur purely depends upon the circumstances under which profit ceases. If prices rise, or the cost of production is diminished, the land under more unfavourable circumstances may be brought under cultivation ; if the price falls, or the cost of production is increased, then a certain portion of the land already in cultivation will be abandoned.

Agents should give every encouragement to a few respectable general dealing shopkeepers on large estates, to ensure good and wholesome articles of food for at least the poorer classes. Adulteration is one of the most crying and serious evils of the day, from which the rich and the poor have alike

suffered. Physicians tell us that various diseases which prevail in these days of science and intelligence are traceable to the vile admixtures of which we innocently partake. Considering the habits of modern society, never was there a greater necessity for purity in our daily food and drink. In fact, adulteration has reached to such a pitch, that even the respectability of the tradesman has almost ceased to be a guarantee for the purity of his wares. We pay not only with our money, but our lives. For the worst of it is, that the articles we purchase are not merely diluted—they are adulterated—positively—abominably—poisonously. There is scarcely a single article of daily use which it is possible to procure genuine from ordinary shops. We ask for bread, and we receive a stone; for coffee, and we receive chicory; for chicory, and we receive burnt carrots, and powder of dried horses' liver; for oil of almonds, and we receive prussic acid. What are we to do when our meat and drink are poisoned? "Adulteration," says Dr. Hassall, "I find to prevail in nearly all articles that it will pay to adulterate." The poor man who usually buys the second quality of flour, instead of finding in it the nourishment which he pays for, gets, on the contrary, an enfeebled power of digestion, and consequently an inferior power of performing work, a debased condition of health; and becomes doubtless, to a certain extent, permanently enfeebled. To children the mischief is much greater. The eminent



analytical chemist, Dr. Normandy, states that the adulteration of flour and bread are much the same, and consist principally in the introduction of alum. "I have actually seen in bread," says the Doctor, "alum so badly and carelessly mixed as to be found in crystals of the size of a large pea; in the bread of a baker in the Church Road I found alum actually in the state of large crystals; I went to him, and showed him his bread, and he said, 'I cannot help it.' I said, 'Are you not afraid of being prosecuted?' and he used a very offensive expression about my eyes, and I of course at once left his shop. Alum has the curious property of imparting to bread made of flour of second or third-rate quality a whiteness which otherwise you could not obtain except in bread of the first quality; besides this, and it is much more important to the baker, it enables him to force into his bread a larger quantity of water than he could otherwise do; the alum imparts to bread the property of retaining the water, after it is taken from the oven. I find that the amount of alum varies from 500 grains, which I had found in the case of which I was speaking, to 250 grains in the 4lb. loaf of bread; frequently 25 to 30 grains in the 1lb.; and more frequently still considerably smaller quantities than that; these, except the last, are rather extreme cases, and generally it does not amount to more than two or three grains per 1000 grains; I may say that, so far as I know, there is not a single baker in London who

makes bread without alum. I once thought I had found that Phœnix of a baker—one who did not use alum; he was an old gentleman, who, however, died lately; and as I went to reside in the neighbourhood about four years ago, I re-examined the bread sold at the same shop, and found alum in it; I thought it was due to him to inform him that his bread, which I had formerly analyzed, and in which I had not found alum, now contained it; and his answer was, ‘If Dr. Normandy does not like my bread, why does he purchase it?’”

The experience of many is that alum in flour is exceedingly pernicious to health; it has a very peculiar effect upon the system when taken in bread. The gums become swollen; the tongue more or less so. There is an unpleasant taste in the mouth, and the stomach itself becomes affected. There is a quantity of acid secreted, and the individual suffers from an attack of dyspepsia without knowing the cause. Probably he changes his baker, or gets a fresh sample of bread, and the attack subsides; but by the repeated introduction of this alum into the system, he is more prone to another attack; it seems to accumulate, as it were, in the system.

With respect to tea, which, with the growth of our civilization, has become a necessity of life, and which is, moreover, such an important element in the preservation of health, that among the four hundred millions of people who crowd the hills and streets of China, epidemic diseases are of rare

occurrence—an exemption unknown to any other part of the world, and which is attributed to the invigorating and health-imparting qualities of the infusion of the tea plant—the evidence was thoroughly conclusive, that, what with the Chinese exporters, the English importers, and the retail sellers, pure tea is a rarity, pay what price you may. Dr. Hassall says, “The conclusions arrived at from the analyses of the different samples of *black* and *green tea*, both as imported and as purchased of dealers in this country, the chief points [ascertained with regard to black tea were, that the principal black teas (viz. the congous and souchongs) arrive in this country for the most part in a genuine state; that certain descriptions of black tea, as scented orange pekoe, and caper, are invariably adulterated, the adulteration in general consisting in the glazing of the leaves with plumbago or black lead; the caper likewise being subject to admixture with other substances, as paddy husk, lie tea, and leaves other than those of tea; that several varieties of a spurious caper, or black gunpowder, are prepared, which consist of dea-dust, and sometimes the dust of other leaves, and sand, made up into little masses with gum, and faced or glazed with plumbago, Prussian blue, and turmeric powder.”

Mr. G. Phillips, the chief chemical officer of the Board of Inland Revenue, said: “In tea as imported, I have found gum, indigo, a vegetable yellow; I cannot say exactly what it was; Prussian

blue, carbonate of magnesia, sulphate of lime, and silica. In the tea made up in this country I found many substances : redried tea-leaves ; other leaves, namely, beech, elm, bastard plane, fancy oak, and willow, made up to represent green tea with gum, Dutch pink, Prussian blue and indigo, carbonate of magnesia, French chalk, and sulphate of lime. When dried leaves and redried tea have been made up to represent black tea, I have found gum outside the leaf just coated over with rose pink to give it a bloom. Foreign leaves are broken up very small, and sifted through a sieve of a known size ; they are then gathered up by means of gum water, and rolled up into pieces, sometimes to represent the caper tea, sometimes to represent coarse gunpowder tea ; they are then faced over with colouring matter made of the blue and yellow substances I have named ; and they are then bloomed by being put into a bag with a little carbonate of magnesia, French chalk, or sulphate of lime.

Badly as we are situated as regards tea, we appear to be somewhat worse with respect to the cheap and nutritious beverages under this heading. “With respect to *coffee* and its adulterations,” says Dr. Hassall, “the conclusions resulting from the microscopical examination of the first series of samples of *ground coffee* subjected to analysis were as follows :—That 34 coffees, with three exceptions, were adulterated ; that chicory was present in 31 instances ; roasted corn in 12 ; beans and potato flour each in

one case ; that in 16 cases the adulteration consisted of chicory only ; that in the remaining 15 samples, the adulteration consisted of chicory, and either roasted corn, beans, or potato flour ; that in many instances the quantity of coffee present was very small ; and in others not less than one-fifth, fourth, third, half, and so on, of the whole article. From a second series of samples examined at the same time, the conclusions were, that 18 out of the 20 samples were adulterated with chicory, and that four of the samples contained roasted corn in addition to chicory. The conclusions resulting from another series of examinations were, that out of the 42 samples of coffee submitted to analysis 11 were unadulterated ; that the remaining 31 samples were all adulterated with chicory, roasted corn, &c."

But few Agents are "careful of small things." In their opinion nothing is worthy of attention, except it can be conducted on a grand scale. They will not condescend to look to the pennies, it is only the pounds or shillings to which they give attention. They talk superciliously of those who look after the little leakages that waste so much money in every concern. They would expend money in constructing a canal, whilst they would consider a simple drain, however desirable and necessary, beneath their notice. They would sell a thousand pounds worth of timber, while fifty pounds worth might rot on the ground, or be had by any one for the mere taking. They fling away, under



the head "sundries," pounds, where shillings might suffice. Not to be "careful of small things" has not only ruined many a fine property, but placed the owner in debt—accursed debt, which haunts a man from post to pillar, lurking in his breakfast cup, poisoning his dinner, imbittering his tea, destroying his domestic joys, and crippling resolutions too good to be fulfilled. We should ever bear in mind that, as the beach is composed of grains of sand, as the ocean is made up of drops of water, so the rich man is the aggregation of the profits of small things, often inconsiderable in amount. To be "careful of small things" was one of the most striking peculiarities of the first Napoleon's mind. The most petty details of his household expenses, the most trivial facts relating to his troops, were, in his opinion, as worthy of his attention as the tactics of a battle, the plan of a campaign, or the revision of a code. The habit of keeping private accounts shows the importance of small sums. The practice of comparing our means with our expenditure is one of the surest sources of prudence, caution, and circumspection in every affair of life. To be a good accountant is not only useful in itself, but it gives the mind a habit of accuracy in other matters. Nor does this apply only to the rich. Those who have never tried can have no idea of the advantage of keeping an exact account of a very small income. A halfpenny or a penny is a mere trifle, but, often repeated, amounts to shillings

and pounds. We are all apt to think little of small expenses, but these in the end are more ruinous than expenses large enough to awaken our attention.

Land Agents will find it of essential advantage to themselves, in securing the confidence of their employers, to limit the expenditure as much as possible. It is a very common practice on many estates to do everything in the way of building and other similar works on a splendid scale. This is all very well; but unless real utility, at the lowest possible rate, be kept constantly in view in carrying out estate improvements, the proprietor will sooner or later refrain from making improvements altogether. Very finely executed works may certainly please in the first instance, but, in the end, the heaviness of the accounts will probably turn the tables against the manager who has sanctioned them. In short, there is nothing so disheartening to landed proprietors as having the net proceeds of their rent-rolls reduced by extravagant outlay. The Agent should ask himself: "Am I working on the best and cheapest possible principles consistent with real efficiency? Will it pay?"

Again, the question as to the propriety of improving the really improveable waste lands of the country is, in any individual case, only to be satisfactorily answered by ascertaining at what expense, in relation to the probable profit, the process may be performed. A barren rocky desert may be

rendered productive by covering it with soil and manures brought from a distance of miles, aided by years of skilful tillage ; but will the cost of these operations be fairly returned by the profits of the produce ? Gold itself may be purchased too highly, and so may agricultural improvements. We do not throw out this idea for the purpose of discouraging, but of cautioning proprietors and farmers of lands. In all projected improvements, they will require to ascertain, in the first place, what will be the probable return within a moderate length of time for their outlay, always keeping in view the prospective prices of rural produce during the period. Such, at least, is the principle of calculation which ought naturally to guide all proprietors of extensive tracts of waste ground, the outlay on which is to be strictly pecuniary. This is what every man who is intrusted with the expenditure of another person's money ought to regard, viz., economy in the disbursement of it, so as to effect the greatest possible amount of profit or improvement at the least expense.

In estate management punctuality is of the utmost importance, yet it is astonishing to find how many Agents neglect it. Numbers of estates have been nearly ruined from this cause alone. It is not only a serious vice in itself, but it is the fruitful parent of numerous other vices. It makes the tenant wasteful of time ; it saps the business reputation of the surveyor ; and it injures the prospects of the mechanic : in a word, there is not a profession or a

situation in life which is not liable to the canker of this destructive habit. Hundreds of tradespeople and others are now suffering severely, in consequence of the want of punctuality among certain Land Agents in paying accounts. We have known, indeed, instances of Agents keeping large sums to their credit at their bankers' for months, the very moneys believed by their employers to have been duly paid away in liquidation of approved accounts. Surely such conduct is highly reprehensible, for many and many a time has the failure of one man to meet his obligations brought on the ruin of a score of others. The whole Waterloo campaign turned on punctuality. At Mont St. Jean Blucher was punctual, but Grouchy was not, and the result was that Napoleon fell and Wellington triumphed. Not to be punctual is sometimes considered a mark of consequence by little great men, but truly great men have always thought differently. Blackstone was punctual, and could never be made to think well of any one notoriously defective in this respect. Lord Brougham, who presided in the House of Lords and the Court of Chancery, who gave audience daily to barristers, and found time to be at the head of at least *ten* associations which were publishing works of useful knowledge, even while a kingdom seemed to be resting on his shoulders, was so punctual that, when these associations met, he was uniformly in his place in the chair when the hour of meeting had arrived. In estate matters punc-

tuality is as important as in military, legal, or any other matters.

Politeness, too, is of much consequence in an Agent. It is the distinctive attribute of a gentleman, while rudeness is that of a boor. The bear growls its characteristic utterance. The man who is addressed with civility, and replies with rudeness, gives utterance to his innate moroseness. True politeness is the natural exponent of a well regulated mind. It is inseparable from good breeding, self-respect, and a high sense of honour. The gentleman is, consequently, courteous in all his intercourse. But the ill-bred man, regarding politeness as an occasional advantage or necessity, fancies that he may exercise it or not, as it suits his convenience. In this view, courtesy is simply a matter of traffic. Thus, in a degree, he makes himself merchantable, although he cannot make himself a gentleman. It is to be regretted, however, that even common civility is not at all times to be met with in places where it should be most looked for.

The well-being of society would be greatly promoted if the nature and use of this Christian virtue, civility, were more generally known. We take this to be, in personal intercourse, the observance of the command—Do to others as you would that others should do to you. The most rapid glance at any community shows that some of its members are brought into contact in matters of business necessarily; others meet incidentally who have no parti-



cular connection; while others meet for social purposes in various forms; and that there is a large proportion who know of each other very little beyond the fact that they are of the same country, and perhaps not even that. There must be a *best rule* of deportment for all these classes; and no one will deny that, if this rule were defined and faithfully applied, there would be more every-day comfort and complacency in the world than is at present found in it. If we rightly understand the meaning of civility, it is the manifestation of kind feelings, and of a desire to do all things which are to be done under the influence of such feelings in a becoming and agreeable manner. If every person understood the true foundation of society, the common origin of all its members, their natural and necessary sympathies, their community of interests, their necessary action upon and with each other, it might be supposed that all who are reasonable would be civil. They would be so, because they would promote their own good, because they would be doing what it is proper to do to promote the good of others, and because they would know that in so doing they would conform to the design of their creation. We do not include under the term *civility* the great duties of justice, acts of munificence, or important personal services. These arise out of some special relation which an individual bears to one or more other individuals. It seems to be limited to the manner in which the common

or accidental intercourse of the members of society in general should be carried on. This matter may be better understood by some examples. Thus, if beggar, servant, labourer, mechanic, trader, merchant, farmer, lawyer, physician, clergyman, or public officer, or a female, or child of either sex, seeks an interview, there may be different modes of receiving them; yet, certainly, by every one of the laws which we are endeavouring to illustrate, each is entitled to civility. Even the beggar—perhaps one should rather say the beggar in particular—if not disgraced by voluntary transgression, should be received with civility; that is, gentleness, kindness, and decorum are to be observed relatively to each one: and for the important reason that no man can afford to be deemed insensible to the requirements of a reasonable humanity, or a stranger to the decencies of life, or ignorant of what is due from him or to him, in any of his proper relations.

A gentleman is invariably civil. He is, as we all know, one who to some advantages of birth, fortune, talent, or situation, unites moral qualities suitable to the place he occupies in society, and manners indicating a liberal education and habits. The people of England have a remarkably nice feeling in this respect, and even the splendour of the loftiest rank will seldom mislead them. If a man of the highest birth depart in his conduct from what his situation requires of him, you will

soon hear it said, even by persons of the humbler class, "Though a lord, he is not a gentleman." If this nobleman be guilty of injustice, if he behave improperly toward the man who accosted him with submissive humility, you will immediately see a proud rudeness succeed to that respect which was accorded to rank. The sentiment of right is so strongly imprinted in English minds, that every human consideration vanishes as soon as this vital principle of social dignity and liberty meets with the slightest infringement.

The duties of masters and servants ought ever to be borne in mind by the Agent. The subject is in itself important, and as the views in a popular print coincide with ours we shall give them here in a condensed form. We hear great complaints, sometimes from masters with regard to their servants, and sometimes from servants with regard to their masters or employers. This connection is regarded as one of the miseries of life; yet it is not necessarily so. If the connection produce vexation, there must be error somewhere. We shall first speak of the duties of masters, in which we always include those of mistresses. It is the duty of masters to cultivate the esteem and affection of those whom circumstances have placed under them. Servants have as good a right to be happy as those above them. If they behave with propriety, and do their duty, they should be spared when sick, advised and relieved when in trouble, and be made as com-

fortable as circumstances will permit. The commands given them should be plain, clear, uniform, and not contradictory or capricious. They are not to be sneered at, or commanded with virulence and reproach, but mildly, and rather by request. They are also to be treated with uniform civility; but every approach to familiarity with them should be avoided, if respect on both sides is to be preserved. It is always best to let servants know what is their duty and what is expected of them; this is beneficial to both parties, and much mischief is sometimes created by not attending to this rule.

The able correspondent of the *Times*, "S. G. O.," states, with reference to household servants—"I am growing old. I never recollect a time in which I have not been told that 'it is *now* impossible to get good servants,' yet I have never had to discharge more than two male, or to change from ill-conduct more than three female servants. Whether it is that I and mine live with our servants, or they live with us, I cannot say exactly; I know the connection is seldom broken between us but with equal regret on both sides. The secret is, take pains to get good servants, pay fair wages, give kind treatment, be strict, but be just. Treat them as fellow-creatures, not as mere domestic automatons, wound up by the key of wages. They will not be perfect—no more are you: it must be bear and forbear; and, after all, remember *you* might have been born to shake a duster, wield a broom, or fry yourself in

July before the fire which cooks the joint you *will* have done to a turn."

Our own experience has given similar results; and, whilst upon the subject, we think the words of Dr. Strachan, of Dolar, N.B., respecting followers, well worth reading. "You cannot expect that girls will not only abandon all social enjoyment, but also all hopes of marriage, which they must do were they kept entirely from male acquaintances. You must, therefore, see the unreasonableness of the usual prohibition of 'followers.' No followers! God Almighty, by his immutable laws of Nature, has declared that they shall have followers. Can we imagine that these immortal beings, with the same constitution as ourselves, with intellects as great, with affections as keen, were sent into the world merely to minister to our needs and to submit to our caprices! It is true that they have work to do, as you and I have, but they have also souls to be trained for immortality, and, like all God's sentient creatures, they have faculties of enjoyment to be gratified. It is the greatest tyranny to attempt to deprive them of the sweetest earthly bliss—that of virtuous love. And what must be the consequence? Try it on your own daughters. Tell them they must have no followers, no friends, no acquaintances, and, within a week, they will have entered on a course of concealment and deception, the first step on the road to ruin."

Let us mark the exceeding kindness of feeling



with which our beloved Queen writes of her servants in her Diary in the Highlands. Queen Victoria and the late lamented Prince Consort have truly set an example of what royalty ought to be. Thus she speaks of Mr. Grant, her head keeper:—

“He had been nearly 20 years with Sir Robert Gordon—nine as keeper. He was born in Braemar in the year 1810. He is an excellent man, most trustworthy, of singular shrewdness and discretion, and most devotedly attached to the Prince and myself. He has a fine, intelligent countenance. The Prince was very fond of him. He has six sons. The second, Alick, is wardrobe-man to our son Leopold. All are good, well-disposed lads, and getting on well in their different occupations. His mother, a fine, hale old woman of 80 years, ‘stops’ in a small cottage which the Prince built for her in our village. He himself lives in a pretty lodge called Croft, a mile from Balmoral, which the Prince built for him.”

She allots a few lines to Mr. John Brown, who must rejoice in the character she gives him:—

“The same who, in 1858, became my regular attendant out of doors everywhere in the Highlands, who commenced as gillie in 1849, and was selected by Albert and me to go with my carriage. In 1851 he entered our service permanently, and began in that year leading my pony, and advanced step by step by his good conduct and intelligence. His attention, care, and faithfulness cannot be

exceeded, and the state of my health, which of late years has been sorely tried and weakened, renders such qualifications most valuable, and, indeed, most needful in a constant attendant upon all occasions. He has since, most deservedly, been promoted to be an upper servant, and my permanent personal attendant (December, 1865). He has all the independence and elevated feelings peculiar to the Highland race, and is singularly straightforward, simple-minded, kind-hearted, and disinterested; always ready to oblige; and of a discretion rarely to be met with. He is now in his fortieth year. His father was a small farmer who lived at the Bush on the opposite side to Balmoral. He is the second of nine brothers—three of whom have died—two are in Australia and New Zealand, two are living in the neighbourhood of Balmoral, and the youngest, Archie (Archiebald), is valet to our son Leopold, and is an excellent, trustworthy young man.”

And, whilst Her Majesty speaks thus generously of her servants, they were not insensible to kindness, and could speak enthusiastically of their master and mistress. The Queen says:—

“We then rode on, Albert talking so gaily with Grant. Upon which Brown observed to me in simple Highland phrase, ‘It’s very pleasant to walk with a person who is always “content.”’ Yesterday, in speaking of dearest Albert’s sport, when I observed he never was cross after bad luck, Brown said, ‘Every one on the estate says there never was

so kind a master; I am sure our only wish is to give satisfaction.' I said, they certainly did."

Thus the first lady in the land speaks for herself in a kindly, womanly spirit. What a model of womanly excellence! In her recent work on the Prince Consort, her Majesty did much towards breaking down the barrier which has long separated the inner life of sovereigns from the knowledge and the sympathy of the external public. We were there admitted to some beautiful glimpses of a home life distinguished by the utmost purity and love—of an affection which survives the grave, and of a grief which time may soften and consecrate, but which the lapse of years cannot remove. Her Majesty in that work appealed to the regard and sympathy of her people, and she did not appeal in vain. In those natural and affecting pages we came at the very heart of the Queen, and were made to feel that in the common prerogative of noble sorrows we are all alike. Mr. Helps says, with entire justice, that "perfect faithfulness of narration is one of its chief characteristics; for in every page the writer describes what she thinks and feels, rather than what she might be expected to think and feel." He also points out "the willingness to be pleased, upon which so much of the enjoyment of any tour depends;" but still more remarkable is "the gratitude even with which the Royal tourists recognize any attention paid to them, or any manifestation of the cordial attachment felt towards them by any of

her Majesty's subjects, from the highest to the humblest." It is, indeed, evident from her own writing, "that her Majesty never takes for granted the services and attentions which are rendered to her, and which we all know would be rendered to her from dutiful respect and regard, but views them as special kindnesses shown to herself, and to which she makes no claim whatever from her exalted position as a sovereign." But we must not dismiss the preface without another passage, pointing to the spirit in which Queen Victoria looks forth from the palace upon the country, and upon those who literally live with her in the land :—

"Perhaps there is no person in these realms who takes a more deep and abiding interest in the welfare of the household committed to his charge than our gracious Queen does in hers, or who feels more keenly what are the reciprocal duties of masters and servants. Nor does any one wish more ardently than her Majesty that there should be no abrupt severance of class from class, but rather a gradual blending together of all classes, caused by a full community of interests, a constant interchange of good offices, and a kindly respect felt and expressed by each class to all its brethren in the great brotherhood that forms a nation."

The duties of servants to masters are equally clear. Their entering into servitude implies a contract which they engage to fulfil. They are bound to execute all reasonable and proper orders in the

line of service for which they are hired. But besides this, they would consult their interests in being generally obliging and willing to assist in exigency of any kind. A seeming wish to please an employer goes a great way in compensating for deficiencies in ability. A civil, obliging turn is indeed one of the chief virtues in a servant, and is certain to secure the affection of masters and mistresses. Strict attention to an employer's interest, regularity of habits, and perfect integrity both in speech and action, form his principal qualifications. There is usually much less actual dishonesty among servants than a regardlessness of their master's interests and time. Their time belongs to their master, and it is dishonest to use it for their own purposes, unless by permission. There is a tendency to reduce the terms of contract betwixt employers and employed to one of a purely mercenary nature—so much work for so much money. There appears to be a growing inclination to drop all kindness of intercourse betwixt the two classes. The consequence is, that many masters feel perfectly indifferent with respect to giving employment to those who have long served them. The injury is, however, mutual; for, when servants know that they are only valued in proportion to the amount of their actual labour, and that they will be paid off without regret, they care little for a master's interest. There can be no question as to who began this improper system. It originated in servants and



workmen endeavouring to exact by violence and intimidation a certain amount of wages for their labour, which the state of society did not warrant. We earnestly trust that it is not yet too late to restore the ancient bond of sympathy betwixt employers and employed of every description. Individual and social benefit would be the result.

*The following Table of the average Yearly Wages paid to Domestics, with the various Members of the Household placed in the order in which they are usually ranked, will serve as a guide to regulate the expenditure of an establishment :—*

	When not found in Livery.	When found in Livery.
The House Steward .....	From £40 to £80	—
The Valet .....	„ 25 to 50	From £20 to £30
The Butler.....	„ 25 to 50	—
The Cook .....	„ 20 to 40	—
The Gardener .....	„ 20 to 40	—
The Footman ..	„ 20 to 40	„ 15 to 25
The Under Butler .....	„ 15 to 30	„ 15 to 25
The Coachman .....	—	„ 20 to 35
The Groom .....	„ 15 to 30	„ 12 to 20
The Under Footman .....	„ —	„ 12 to 20
The Page or Footboy .....	„ 8 to 18	„ 6 to 14
The Stableboy .....	„ 6 to 12	—

	When no extra allowance is made for Tea, Sugar, and Beer.	When an extra allowance is made for Tea Sugar, and Beer.
The Housekeeper .....	From £20 to £45	From £18 to £40
The Lady's-maid .....	„ 12 to 25	„ 10 to 20
The Head Nurse .....	„ 15 to 30	„ 13 to 26
The Cook .....	„ 14 to 30	„ 12 to 26
The Upper Housemaid... ..	„ 12 to 20	„ 10 to 17
The Upper Laundry-maid ...	„ 12 to 18	„ 10 to 15
The Maid-of-all-work .....	„ 9 to 14	„ 7½ to 11
The Under Housemaid.....	„ 8 to 12	„ 6½ to 10
The Still-room Maid.....	„ 9 to 14	„ 8 to 12
The Nurse-maid .....	„ 8 to 12	„ 5 to 10
The Under Laundry-maid ...	„ 9 to 14	„ 8 to 12
The Kitchen-maid.....	„ 9 to 14	„ 8 to 12
The Scullery-maid.....	„ 5 to 9	„ 4 to 8

These quotations of wages are those usually given in or near the metropolis; but, of course, there are many circumstances connected with locality, and also having reference to the long service on the one hand, or the inexperience on the other, of domestics, which may render the wages still higher or lower than those named above. All the domestics mentioned in the above table would enter into the establishment of a wealthy nobleman. The number of servants, of course, would become smaller in proportion to the lesser size of the establishment; and we may here enumerate a scale of servants suited to various incomes, commencing with—

About £1000 a year—A cook, upper housemaid, nursemaid, under housemaid, and a man servant.

About £750 a year—A cook, housemaid, nursemaid, and footboy.

About £500 a year—A cook, housemaid, and nursemaid.

About £300 a year—A maid-of-all-work and nursemaid.

About £200 or £150 a year—A maid-of-all-work (and girl occasionally).—*Beeton*.

Estate Agents should be very early risers. It is due to their employers that they should be so, not only for example's sake, but for the despatch of business. The habit is easily acquired by any person in good health. In fact, lying late in bed is a most disgusting, indolent habit, killing thousands annually. It unstrings the nerves, relaxes

the whole frame, and so stupefies man that he thoroughly dislikes labour. Then the early riser renders a month equal to five weeks. The difference between rising every morning at six and at eight, in the course of forty years, supposing a man retired to rest at the same time, amounts to three years, one hundred and twenty-one days, and sixteen hours, which will afford eight hours a day for exactly ten years. It is, therefore, the same as if ten years of life were added in which we could command eight hours every day for such duties as may devolve upon us in public life. Moreover, it should ever be borne in mind that the free open air is a kind of cold bath after rising out of a warm bed. It quickens the circulation of the blood, which had crept lazily along the veins throughout the hours of darkness, and braces us up. Add to this the influence of the fresh morning air—the retreating of the noxious vapours of the night—the cheerfulness of the morning light stealing in so gently, and the glorious magnificence of the rising sun—each adding force to the heart, and giving a spur to the lagging and jaded spirit.

From an entertaining book of sporting gossip recently published under the odd title of “Sportascrapiana,” we learn, in the words of Captain Horatio Ross himself, the secret of the remarkable preservation of a fine vigorous physique to a late period of life, which is the characteristic of that renowned deerstalker and rifle-shot. “I attribute

it," says Captain Ross, "in a great measure to having always kept myself in a state of moderate training. I have always lived well, and for many years have drunk nothing but light claret, one bottle per diem; but I have never omitted, wherever I was, whether in town or country, whether the weather was fair or the reverse, to walk regularly eight miles, and generally twelve miles, every day of my life, unless I had an opportunity of going out shooting. I have also, for a great many years, been very particular in taking a sponging bath of cold water every morning." And now at sixty-five—an age when most men are verging to "second childhood"—he can walk his fifty miles, at three and a-half miles an hour, without fatigue. What he can do with the rifle everybody knows. It is tolerably clear, from the statements in "*Sportascrapiana*," that training, as Captain Ross understands it, and training as it is understood and practised at Oxford and Cambridge, are two different things.

" The hour, the appointed hour,  
But to your post."

Many Agents who make business visits commit a great error in not stating their object at once, and in as few words as possible. They hesitate, introduce some subject altogether foreign, and occupy much precious time to little purpose. Instead of proceeding to the matter in hand directly, they

apologize for the intrusion, intimate that another time may prove more acceptable, explain and prevaricate, until at last the real object is absolutely forced from them. All this is exceedingly annoying to persons who are constantly engaged, and who have no time to waste upon mere prozers. We may mention the case of one individual who invariably states his object in a roundabout way, and introduces at least one other subject preparatory to that which he really desires to converse upon. He does so, too, in the politest manner; forgetful, however, that time is valuable, and that there are other people in the world besides himself. A visit strictly of business should be brief, direct, and to the purpose. Moreover, it should be remembered that punctuality in the fulfilment of engagements is a matter of the utmost importance with men of business, and yet it is difficult for them to be punctual under such circumstances as we have described.

The Agent should at all times be mindful of the poor on the estate under his charge. He ought never to be satisfied with mere reports, but see for himself by actual visitations. How nobly does Her Majesty the Queen set the example. In her charming Diary we find very touching accounts of her visits to the poor.

The good Agent will be a liberal but discriminating supporter of the Press in his locality. He will not feel an obligation to patronize any and every thing that wears the form of a newspaper, but will



scan carefully the intellectual ability and moral fitness of those who assume the serious responsibility of public teaching through its means. He will not encourage the dissemination or continuance of journals edited by the incompetent or unworthy; and if there be none other already in existence in his county, he will combine with men like himself to procure the establishment of such a journal as is needed, or the transfer of one already existing, into the hands of some one qualified to guide opinion and dispel mental darkness amongst the rural population. Such a journal he will liberally and steadily encourage and support by advertising in its columns, urging upon other business men the duty of doing the same. By pursuing this course, the Agent may effect much toward the diffusion of intelligence, the predominance of sound principles, and the purification of morals. A properly-conducted influential journal is the most important advantage that a community can enjoy. It is of the utmost importance to the tenantry of any estate, as it exerts a noiseless, unintermitted influence in clearing away ignorance, in extending the sway of virtue, and laying deep the foundations of general and personal prosperity.

“ ’Tis education forms the common mind,  
Just as the twig is bent the tree's inclined.”

Of all the means of publicity, no one contributes more than the newspapers to a general diffusion of

knowledge. In every country the periodical Press is one of the most important results of modern civilization. Nowhere is it so essential an element of the social organization as with us. Elsewhere newspapers supply a powerful weapon, of which governments and parties avail themselves by turns. In England they form the indispensable medium of all the connexions men have with each other. They are a kind of microcosm, in which all the circumstances that interest the community are displayed. Moreover, they deter many from evil doing, because no person cares to have to blush at the bar of public opinion. There are, indeed, few villages in England where the reading of a newspaper has not become a primary want. Moreover, give us for an Agent the straightforward, fearless, enterprising man of business, one who is worth a dozen of those who, when anything is to be done, stop, falter, and hesitate, and are never ready to take a decided step. One turns everything within his reach into *gold*—the other tarnishes even what is bright; the one will succeed in life, and no adventitious circumstances can hinder him—the other will be a continual *drawling* moth, never rising above mediocrity, but rather falling below it. Make up your mind to be firm, resolute, and industrious, if you desire prosperity. There is good in that saying of the Apostle, “Whatsoever your hands find to do, do it with all thy might.” We love our upright, energetic men. Pull them this way, and that way, and the other

way, and they only bend, but never break. Trip them, and in a trice they are again upon their feet. Bury them in the mud, and in an hour they will be out and bright. They are not ever yawning away existence, or walking about the world as if they had come into it with only half their soul ; you cannot keep them down ; you cannot destroy them. But for these the world would soon degenerate. They are the salt of the earth.

Agents ought to be thoroughly acquainted with parish business, such as,—that the inhabitant rate-payers must meet on or within fourteen days after the 25th of March, and make out a list, out of which the magistrates in petty sessions must appoint not less than two, or more than four persons to be overseers ; guardians must be elected at the same time ; churchwardens are chosen in vestry during Easter week ; electors : overseers, on the 20th of June, are to fix on the church doors lists of the persons qualified to vote for counties ; the 20th of July is the last day for sending in claims as county voters ; the list of electors is to be made out on the 31st of July, and on the first and second Sundays in August, borough and county lists are to be affixed on church doors ; before the 20th of July electors in cities and boroughs must pay their poor-rates and assessed taxes ; persons objecting to claims must give notice by August the 25th ; and so on.

Agents would do the country in general some real good if they would advise tenants to fill up

such papers on agricultural subjects as may from time to time be laid before them by the Board of Trade. The prejudices of the farming world against the publication of agricultural statistics are gradually giving way, but they are by no means extinct or inoperative. The bucolic mind has yet to learn that nobody asks them to say how large are their crops, or to do anything which may prevent them from bringing their corn and beasts to the best market. All that they are asked to do is to fill up the printed forms with figures showing what amount of land they have under each variety of crop, and the number of cattle, sheep, and horses which they may happen to possess at a certain period of the year. These returns are, moreover, not to be made public in such detail as to show to all the world the condition of any individual farm or farmer. It is no gain to the agricultural interest or to the general public to know whether John Stubbs has got more or fewer bullocks than his neighbour, Thomas Hodge, or to ascertain that William Dobson has not attended market for the last two months, because he is holding back several fine ricks of wheat or barley. What we want to know is the total breadth of land laid down for each particular crop, and the number of cattle and sheep in existence in the whole country, so that each individual farmer may regulate his own farming with a view to produce that which is in the most demand, and that markets everywhere may be less subject to

panics and needless risings and falls in prices. The returns will, in fact, hurt nobody, and may benefit everybody.

Statistics, though dry to deal with, are most important and valuable, and we ought to have a high appreciation of the science which they serve. The late lamented Prince Consort felt largely and deeply upon the value of statistics in a national point of view. We find His Royal Highness, on opening the International Statistical Congress in 1860, speak as follows :—

“Gentlemen, old as your science is, and undeniable as are the benefits which it has rendered to mankind, it is yet little understood by the multitude, new in its acknowledged position amongst the other sciences, and still subject to many vulgar prejudices.

“It is little understood ; for it is dry and unpalatable to the general public in its simple arithmetical expressions, representing living facts (which, as such, are capable of arousing the liveliest sympathy) in dry figures and tables for comparison. Much labour is required to wade through endless columns of figures, much patience to master them, and some skill to draw any definite and safe conclusions from the mass of material which it presents to the student ; while the value of the information offered depends exactly upon its bulk, increasing in proportion with its quantity and comprehensiveness.

“It has been little understood, also, from the



peculiar and often unjustifiable use which has been made of it. For the very fact of its difficulty and the patience required in reading up and verifying the statistical figures which may be referred to by an author in support of his theories and opinions, protect him, to a certain extent, from scrutiny, and tempt him to draw largely upon so convenient and available a capital. The public generally, therefore, connect in their minds statistics, if not with unwelcome taxation (for which they naturally form an important basis), certainly with political controversies, in which they are in the habit of seeing public men making use of the most opposite statistical results with equal assurance in support of the most opposite arguments. A great and distinguished French minister and statesman is even quoted as having boasted of the invention of what he is said to have called "*l'Art de grouper les Chiffres.*" But if the same ingenuity and enthusiasm which may have suggested to him this art should have tempted him or others, as historians, to group facts also, it would be no more reasonable to make the historical facts answerable for the use made of them than it would be to make statistical science responsible for many an ingenious financial statement.

"Yet this science has suffered materially in public estimation by such use, although the very fact that statesmen, financiers, physicians, and naturalists should seek to support their statements and doctrines by statistics, shows conclusively that they all

acknowledge them as the fountains of truth; and this ought, therefore, to raise, instead of depressing, the science in the general esteem of the public."

This is but a short extract from what must be characterized as a truly admirable speech, in all respects worthy of the lamented speaker, of whom it was, indeed, characteristic to give his best thought to whatever subject he was treating.

*Statement of the Population and Numbers of Live Stock in the United Kingdom, and various Foreign Countries, according to the Latest Returns.*

Countries.	Date of Returns of Live Stock.	Population according to Latest Returns.	Cattle.			Sheep.	Pigs.
			Cows.	Other Cattle.	Total.		
United Kingdom	1865-66	29,070,932	3,286,308	5,030,652	8,316,960	25,795,708	3,802,399
Russia ..	1859-63	74,139,394	..	..	25,444,000	45,130,800	10,097,000
Denmark Proper	1861	1,662,734	756,834	361,940	1,118,774	1,751,950	300,928
Schleswig ..	1861	421,486	217,751	172,250	390,001	362,219	87,867
Holstein ..	1861	561,831	198,310	92,062	290,372	165,344	82,398
Sweden ..	1860	3,859,728	1,112,944	803,714	1,916,658	1,644,156	457,981
Prussia ..	1862	18,491,220	3,382,703	2,251,797	5,634,500	17,428,017	2,709,709
Hanover ..	1861	1,880,070	..	..	949,179	2,211,927	554,056
Saxony ..	1861	2,225,240	411,563	226,897	638,460	371,989	270,462
Wurtemberg ..	1861	1,720,708	466,758	490,414	957,172	683,842	216,965
Baden ..	1861	1,429,199	343,418	273,068	621,486	177,322	307,198
Hesse ..	1863	853,315	187,442	129,211	316,653	231,787	195,596
Nassau ..	1864	468,311	116,421	84,224	200,645	152,584	65,979
Mecklenburg							
Schwerin ..	1857	539,258	197,622	69,215	266,837	1,198,450	157,522
Oldenburg ..	1852	279,637	..	..	219,843	295,322	87,336
Holland ..	1864	3,618,459	943,214	390,673	1,333,887	930,136	294,636
Belgium ..	1856	4,529,461	..	..	1,257,649	583,485	458,418
France ..	1862	37,386,313	5,781,465	8,415,895	14,197,360	33,281,592	5,246,403
Spain ..	1865	15,658,531	..	..	2,904,598	22,054,967	4,264,817
Austria ..	1863	36,267,648	6,353,086	7,904,030	14,257,116	16,964,236	8,151,608
Bavaria ..	1863	4,807,440	1,530,626	1,655,356	3,185,882	2,058,638	926,522
United States ..	1860	31,445,080	8,728,862	8,182,613	16,911,475	23,317,756	32,555,267

The following general abstracts show the acreage under the several crops in Ireland for the year 1866; also the emigration from Irish ports from 1st January to 31st July in 1865 and 1866:—

The total acreage under all crops this  
year was . . . . . 5,519,678

The total acreage under all crops 1865  
was (revised numbers) . . . . . 5,648,403

---

Showing a decrease in the extent  
under crops in 1866 of . . . . . 128,725

The crops which diminished in area this year are—

		Acres.	Acres.
Cereals	{ Oats ... ..	47,580	76,361
	{ Barley ... ..	26,564	
	{ Bere and Rye ... ..	99	
	{ Beans and Peas ... ..	2,118	
Green Crops	{ Potatoes ... ..	15,841	32,932
	{ Turnips ... ..	17,091	
Meadow and Clover	... ..		77,998
Decrease on the foregoing crops ...			187,291

The crops which increased in acreage in 1866 are—

		Acres.	Acres.
Cereals ...	Wheat ... ..		33,485
	{ Mangold and Beet... ..	5740	12,855
Green Crops	{ Cabbage ... ..	2824	
	{ Carrots, Parsnips, and other		
	{ Green Crops .. ..	2661	
	{ Vetches and Rape ... ..	1630	
Flax ... ..	... ..		12,226
Increase on the foregoing crops			58,566
Making a net decrease in the area under all crops of			128,725

Although the foregoing statement shows a decrease of 128,725 acres in the total extent under crops in 1866, there was an increase in the extent under “grass” to the amount of 210,425 acres, and a diminution in the area under “bog and waste unoccupied” of 86,664 acres. Woods and plantations also show an increase this year, and fallow a decrease. The following abstracts exhibit the acreage under each crop in 1865 and 1866, and the increase or decrease in the latter year:—

## ABSTRACT OF CEREAL CROPS.

	1865.	1866.	Increase in 1866.	Decrease in 1866.
	Acres.	Acres.	Acres.	Acres.
Wheat ...	266,989	300,474	33,485	—
Oats ...	1,745,228	1,697,648	—	47,580
Barley ...	177,102	150,538	—	26,564
Bere and Rye ...	10,091	9,992	—	99
Beans and Peas ...	16,899	14,781	—	2,118
Total ...	2,216,309	2,173,433	33,485	76,361

Decrease in cereal crops in 1866 ... 42,876 acres.

## ABSTRACT OF GREEN CROPS.

	1865.	1866.	Increase in 1866.	Decrease in 1866.
	Acres.	Acres.	Acres.	Acres.
Potatoes ...	1,066,260	1,050,419	—	15,841
Turnips ...	334,212	317,121	—	17,091
Mangold - Wurtzel and Beet Root...	14,478	20,218	5740	—
Cabbage ...	33,622	36,446	2824	—
Carrots, Parsnips, and other Green Crops ...	24,130	26,791	2661	—
Vetches and Rape	29,466	31,096	1630	—
Total ...	1,502,168	1,482,091	12,855	32,932

Decrease in green crops in 1866 ... 20,077 acres.

## GENERAL SUMMARY.

		Acres.	Acres.
Decrease in Cereal Crops	in 1866	33,485	140,954
Do. Green Crops	in do.	20,071	
Do. Meadow and Clover	in do.	77,998	
Increase in Flax	in do.	...	12,226
Total decrease in the extent of land under crops in 1866			128,725

It will be perceived from the abstracts that there has been this year a small increase in the acreage under wheat in almost every county, amounting to 33,485 acres; and that of the “cereals” and “green” crops, oats and potatoes are still, as formerly, the most extensively grown—occupying respectively 1,697,648 and 1,050,419 acres.

The returns of live stock for 1866, compared with 1865, show an increase in the number of cattle of

245,384; of sheep, 575,671; and of pigs, 187,570; and a decrease in horses of 12,708. The total estimated value of horses, cattle, sheep, and pigs this year is £35,178,040, being an increase of £2,361,033 compared with 1865. It appears by the returns that there is a decrease this year in Leinster in the number of "cattle under one year old" amounting to 12,058. This may be in some degree accounted for by the operation of the Order in Council of 25th August, 1865, prohibiting the removal of cattle from Great Britain to Ireland, thus preventing, since that date, the usual importation of "calves" into the ports of Dublin, Drogheda, and Dundalk, which, we are informed on reliable authority, has been considerable, particularly in Dublin for some years. The decrease of 1648 in the number of "cattle under one year old" in Ulster may perhaps also be attributed to the operation of the same Order in Council.

*Irish Agricultural Statistics.*

CROPS.	1861.	1862.	1863.	1864.	1865.	1866.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat .. ..	401,243	356,321	264,766	279,863	266,989	300,474
Oats .. ..	1,999,160	1,977,528	1,948,986	1,809,918	1,745,228	1,697,648
Barley .. ..	198,955	192,302	171,238	172,602	177,102	150,538
Bere and Rye ..	11,582	12,128	8,624	8,992	10,091	9,992
Beans and Peas ..	14,017	15,202	15,148	16,026	16,899	14,781
Potatoes .. ..	1,183,504	1,018,112	1,023,626	1,039,282	1,066,260	1,050,419
Turnips .. ..	334,104	376,715	351,360	337,283	334,212	317,121
Mangel and Beet Root	22,949	23,222	16,462	14,106	14,478	20,218
Cabbage .. ..	30,020	30,543	33,998	31,756	33,622	36,446
Carrots and Parsnips ..	19,559	17,713	22,653	23,190	24,160	26,791
Vetches and Rape ..	31,280	30,830	29,678	29,918	29,466	31,096
Flax .. ..	147,957	150,070	213,992	301,860	251,433	263,659
Meadow and Clover ..	1,546,206	1,552,924	1,560,648	1,608,124	1,678,493	1,600,495
LIVE-STOCK.						
No. of Horses .. ..	614,232	602,894	579,179	561,361	548,339	535,631
" Cattle .. ..	3,471,688	3,254,890	3,158,275	3,257,309	3,459,548	3,742,932
" Sheep .. ..	3,556,050	3,456,132	3,303,937	3,363,068	3,694,356	4,270,027
" Pigs .. ..	1,102,042	1,154,324	1,014,802	1,056,249	1,305,953	1,493,523



The returns obtained by the enumerators at the several Irish ports show that during the first seven months of the present year (ending 31st July, 1866) 74,195 persons emigrated, being an increase of 11,933 persons compared with the same period in 1865.

Agents should at all times be careful about giving credit in the matter of rent. Of course, in some cases, it must be given; but, as a rule, it is a most pernicious system. It is dangerous to take tenants' acceptances, at however short a date, unless we clearly see whence the means of paying them are to come. We have all heard of the Irish gentleman who said, "Thank God, that's settled!" as he signed a bill for a claim that had been running some time, forgetting that the money was still due. The Agent ought, of course, to be indulgent without negligence, and firm without rigour. He should, however, steadily refuse to endorse the acceptance of any tenant unless with the full sanction of the landlord. If rents are high, it were well to have them adjusted; but, by all means, let tenants be kept out of arrears, which, if once allowed to accumulate, will be certain to drag them down and impair their usefulness. There are exceptional cases, no doubt. Highly deserving men may have been unfortunate; and, in these instances, it is the duty of the Agent to alleviate, by every possible means consistent with his employer's interest, sufferings which are not the fruits of misconduct. All men are liable to misfortune in this life,

and even the most cautious and prudent are sometimes caught in a tight place. When a tenant becomes embarrassed, he cannot too early make his condition known to the Agent and Proprietor. No good landlord will ever treat an honest, frank, and open tenant hardly. Moreover, the community at large respects a man who shows his hand fairly, and makes a truthful statement. Let no one be cast down by the difficulties which may beset his path, for energy and perseverance never miss their reward. How many, when the cloud of a moment has overshadowed them, have lost all command over themselves, and fled before the temporary gloom, instead of persevering till it has passed away, and sunshine once more has smiled upon their efforts! When a man discovers that he is insolvent, the sooner he fails, probably, the better. It is an old Shakspearian truth that "Sorrows come not single spies, but in battalions;" and when a train of unfortunate circumstances has so set upon a man as to reduce him below the line of solvency, the sooner he arrests it by a prompt winding-up, the better for himself and his creditors. The catastrophe of failure seldom comes at once. The shadows of it are often cast before. As they deepen and thicken, they offer continual temptation, hard to resist. In this protracted agony it is that men commit the greatest errors—errors which, sometimes perhaps judged with undue severity, fix a stain upon their character that no time can efface.

The managers of estates should be very vigilant in putting down all trades unions, which are not only a curse to the working-men, but a disgrace to any district in which they exist. Doubtless, "union is strength," but a union of weak men against a union of strong men will only show the truth of another maxim, that "the weaker will go to the wall." We have had a great deal of experience with working men, and we are inclined to think that there is quite as much extortion practised by the men as oppression exercised by the masters. But whether this be so or no, the rules of a trades union bind men to acts of justice towards their fellow-workmen, and commit them to a course which degrades them in the eyes of the upright and honourable. A workman has a perfect right to quit his work, but he has no right to compel his fellow-workman, by lawless and violent means, to quit his too. Let us not forget that the best champions of the people's cause, the true interpreters of their sentiments, are not members taken from among themselves, but men who, independent both by their fortunes and their station in society, feel themselves animated with a generous ardour to defend the rights of the weak, and a lively sympathy for the sufferings of the poor. It is always a great calamity when these unions meet with any temporary success—a calamity over which every true friend of the working man must grieve. Any success which feeds the spirit in which these unions are conceived is, in the highest

sense, an injury to the operative. Every Land Agent should, therefore, set his face like a flint against them. They are mischievous in their operation for the present, and they sow the seeds of mischief for the future; anarchy is their abettor, tyranny is their leader, and starvation is their result. Yea, and even more, *crime*; for did we not read of the atrocious outrage perpetrated the other day by two trades' unionists, who stabbed four horses, the property of Mr. John Lewis, of Birmingham, worth about £200, simply because this worthy gentleman was an active anti-unionist!

What took place before the Sheffield Trades Union Commission was certainly more than enough to make one's blood run cold in the veins. Ghastly scenes of crime have been opened up. In one case an innocent man, whom that arch miscreant and murderer, Broadhead, accused of a murder of which he himself was the author, was nearly brought to an ignominious death, and the man's wife and mother died of grief and shame. What a discredit to the country that the information has been purchased by cheating the gallows of such a villain. We can all remember the instinctive and universal shuddering with which, a generation ago, the nation learnt of the crimes committed by mercenary murderers who butchered Italian boys and suffocated unsuspecting tipplers, that they might sell their bodies for a few pounds. More recently we have had disclosures of individual atrocities perpetrated

by men of the Pritchard and Palmer type, to get possession of the property of their victims. But these, at the worst, were isolated instances. They were enormities and monstrosities, whose occasional appearance might shock and surprise, but could not humiliate or degrade us. It has been reserved for the Sheffield Commissioners indisputably to demonstrate that, in the year of grace 1867, there are societies in whose eyes malicious mischief, desperate wounding, dastardly assassination, and cowardly murder, are comparatively venial and completely to be concealed offences, if only they are committed in vindication of trades union rules, in maintenance of trades union privileges, and in endeavours to bolster up an exceptionally high and union-made rate of wages. Broadhead remains still, as he appeared at first, the principal actor in these scenes of blood; but so numerous are his confederates that it is no longer possible to regard him as a mere exceptional character, or the sole representative of a secret system. Here we have, besides Broadhead, five secretaries and a president of as many different unions, all engaged as accessories before or after the fact in murderous or sanguinary outrages for purposes of trade. We have committees of unions either actually paying the blood money for these deeds, or allowing funds to be abstracted for the purpose without observation or enquiry. We have a large employer of labour consenting to hire out one of his own men to shoot a particular victim,



and concealing the whole story for ten years together. We say nothing more at present about the general inference which must have been inevitably suggested by a succession of outrages all bespeaking the same motives and the same agency, and all falling on the same class of sufferers. We only desire the public to observe that a score or two of persons, at the least, must have had more or less cognizance of the character and origin of these atrocities, and that while not one man was found to come forward and give a clue to their origin, the loudest denunciations of the system were uttered by those who at the very moment were actually engaged in it. True it is that the stigma is confined to Sheffield, though we are not sure that precedents may not be found in the trade practices of Glasgow and Manchester some thirty years ago; but it would be well if those who are now honestly scandalized by these revolting revelations would renounce also, once and for all, intimidation and coercion in every shape, even though falling short of organized murder.

The whole history is so horrible that it hardly requires any comment. No one probably will deny that the murders were as infamous in every respect as could possibly be committed. Devotion to a trade union is like devotion to a religion, to a country, to a particular cause—it has terrible dangers, and frequently tends to horrible crimes.

The ulterior object, of course, was to raise wages

—that is, to raise them above their natural level ; but that is as hard a task as to keep water from finding its natural level, and is a still more unprofitable task. The artificially enhanced wage, if it is obtained at all, is obtained not from the employer but from the consumer, and the chief consumers of all ordinary articles are the working classes themselves. Another and perhaps a greater fact is, that wages are never permanently raised by such devices. The trades which of late years have most resorted to combinations are not the trades which, within that period, show the most rapid advance in wages ; and the more general and natural effect is to drive away the trade to other places or countries, as the combinations at Sheffield have greatly increased the cutlery manufactures of Germany. But though the object had been as wise as it was foolish, nothing could for a moment justify the vileness and wickedness of the means ; and it is impossible to resist some little misgivings at the idea of a large, if not indeed preponderant, share of political power being about to be given to men who show so entire a disregard of the rights of their fellows and of the laws of God and man.

Let Agents do all that in them lie to put down trade unions of the Sheffield type, and indeed all unions in all trades on the properties under their charge. This is their bounden duty.

Canon Girdlestone gives the following account of his efforts to transfer agricultural labour from

places where there is a surplusage to other places where it is in demand:—"I have now sent away in all no less than ninety labourers from this neighbourhood (Tiverton) to other parts of the country. Of these thirty are married and with families; almost all are doing well, and still in their own vocation of agricultural labourers, are in their new homes earning—the married men from 12s. to £1 a week, with a cottage and garden rent free, together with, in some cases, fuel and other privileges; the single men, board, lodging, washing, mending, and from 6s. to 8s. a week. The result of this movement is very encouraging. Among the labourers—up to this time a rather sleepy, untravelled, and immovable body—a spirit of enquiry and enterprise has been roused. Many besides those towards whose removal I have been instrumental have of themselves found better wages in distant places. Those who remained have learnt that a removal to better-paid districts is not by any means as difficult a matter as they once supposed. The farmers in every part of this neighbourhood have raised wages from 7s. to 8s., 9s., and, in some cases, even 10s. a week. They have begun to treat their labourers with more kindness and consideration. And much to their own advantage, as well as ultimately to that of the labourers, they have begun to make more general use of mowing, reaping, and other machinery. In other parts of the country, farmers short of hands have learnt how

easy it is, by means of the penny post and penny-a-mile trains, to enlist the services of those at a distance, and have discovered that it is well worth their while to do this, at the cost of giving part and advancing the remainder of the expense of removal, to be repaid gradually out of wages. Thus the influence for good has been much more extensive and important than could have been anticipated from the means employed. This success, though on a limited scale, has induced me to invite the co-operation of several influential persons in an attempt to give a more comprehensive and permanent character to my own hitherto unassisted and consequently partial efforts. We have established at 18, Serjeants' Inn, London, an institute and office for the registration of the wants of both employers and employed. In connection with this a circular will be issued monthly, containing a list of the above wants, the price of labour in various districts, and other appropriate information. District agencies, with a liberal commission, are likewise being gradually established in various parts of the country, both to collect and supply information, and make known the wants of all parties concerned."

We all know that no nation can be prosperous without a good Government. And what is a good Government? It is one which protects property, instead of making war upon property. It is one which hallows the marriage between capital and

labour ; a union from which proceeds the fair family of industry, wealth, contentment, harmony, and peace. We who live in England ought to be thankful that, instead of the dagger and the secret oath to remedy wrongs and destroy tyranny, we have more effective weapons in absolute freedom of speech and pen. Men in other lands will talk and grumble and conspire in secret against oppression ; but in no country under the sun are grievances so openly denounced, and wrongs so speedily and so surely remedied, as in dear old England. Through the noble freedom of her Press falsehood is refuted, fallacies exposed, and error corrected, hardships ended, and true liberty obtained. It ought never to be forgotten that conspiracies and secret unions may overthrow an individual tyrant, but cannot make a free people. We earnestly trust that the working-classes in our land may vigilantly guard against yielding to fanciful notions of oppression, for England is at the present day the most glorious illustration of freedom. Her institutions are the results of the onward march of ages, and her language is the only tongue in which liberty deigns to speak. Whatever may be the representations of those who affect to deplore the condition of England, it is nevertheless true that there does not exist, and never has existed elsewhere, so beautiful and perfect a model of public and private prosperity ; so magnificent and, at the same time, so solid a fabric of social happiness and national grandeur.



Substance of a paper read before the British Association at Dundee, by Dr. Lauder Lindsay, of Perth:—

A visit to the Lews gave me an opportunity of inquiring into and personally inspecting the condition of the *Tussac grass plantations*, which had been established there in 1845, on the estates and under the auspices of that enlightened and liberal patron of improvement in our western islands, Sir James Matheson, Bart, M.P. These plantations were established by James Ritchie, of Perth, who, some years subsequently, when their success was no longer matter of doubt, submitted an account thereof (in 1852) to the Highland Society, which awarded him its “medium gold medal,” and published his essay in its *Transactions*. From that essay, and from subsequent statements in various published works of topography or travel, it is evident that for a time the experiment of acclimatizing tussac grass in our western islands was most successful; and there can be equally little doubt that the successful acclimatization of such a grass ought to have been, and might have been made, and, as remains to be herein shown, may yet become, a boon of no insignificant kind to many of the bleak and sterile islands and coasts of Scotland. The plant is perennial and evergreen; its nutritiveness has been vouched for by Professor Johnston, the eminent agricultural chemist, and other authorities; it is improved by cutting, if not too close to the root; it grows on

soils incapable of producing a more delicate herbage; it can be cut and carried even in snow; and thus, while constituting a food for cattle throughout the year, it is more specially available as winter fodder, in circumstances where hay and turnips are not obtainable. Supply can be depended upon in and through all seasons; while it grows so rapidly that, when cut down, it recovers its bulk in five weeks during summer, and two months during winter (in Orkney). As might be expected, *cultivation* greatly improves the nutritive quality and general economic value of the plant. On Holm (Lews) in 1847, plants had leaves five to seven feet long, while single plants in various other parts of the same island weighed 46lb., each tuft yielding forty to sixty good plants. In exceptional specimens—grown in Orkney—the weight attained was occasionally 1 cwt., — 112lb., or more than double the usual maximum. Mr. Ritchie found, in the Lews, that cattle preferred tussac foliage to all other fodder; but he also found that they are very fond of, and devour greedily, the saccharine, succulent roots, or root stocks—thus, however, necessarily destroying the plant.

The success which characterized the earlier attempts at tussac acclimatization in Scotland was manifestly due to the attention that was paid to the necessary conditions of success—to the imitation of the natural circumstances of growth. Mr. Ritchie had carefully pointed out the proper methods of

cultivation, and had personally seen and left these methods in successful operation. He left the experiment in a favourable condition for permanent success, and I doubt not continued and increased success would have been the result of simple attention to his rules of growth. These rules included mainly the following:—1. That the plants should be some feet apart (four feet in Lews, three feet in Orkney) in each row, the growth of the native plant being “tussocky.” 2. That the rows, like the individual plants in each row, should be some feet apart—say four. 3. That the plants should be carefully freed from weeds, just as turnips are, during especially the first two years of growth. 4. That they should be sedulously protected, by fencing, against cattle and all animals which might eat the roots, and so destroy the plants. 5. That the *leaf only* should be cut down for fodder, the *roots being carefully preserved*. 6. That cropping should not be too close to the roots. These rules might be condensed into the general proposition that *tussac requires care and protection like other crops*, and not more so; and one would suppose that such a proposition is readily intelligible, and a simple rule for practice.

The present condition of the tussac plantations in the Lews may be shortly stated thus:—The limited plantations in the grounds of Stornoway Castle are still in a thriving condition; but here they are properly tended by gardeners, and protected

from ravage by cattle. In other localities the plants are either in bad condition, are disappearing, or have already disappeared. *No care is bestowed on their cultivation*; weeding has not been attended to; fences have been permitted to fall to decay; and cattle have been afforded unlimited access. Even did cattle not grub up and eat the roots, they destroy the plants by trampling them down, just as they do the much lustier New Zealand flax plant in its native country. The failure of the Sutherland experiments (of Horsburgh, at Tongue, in 1846,) was attributed, partly at least, to mice nibbling the roots, on which they lived—these animals constructing their nests at the base of the tufts. Danger from such a source was probably unexpected and might not be preventible; but the absence of fences and the access of cattle could only be attributed to the *grossest carelessness*! In other words, so soon as the necessary conditions of success were *unattended to*—so soon as the circumstances conducive to acclimatization were disregarded, the experiment in the Lews began to fail, and at present, and on the whole, it must be pronounced a signal failure; one that, under the circumstances, was as deserved as it was inevitable.

I made special inquiry at residents of every class in the Lews, with the result of eliciting a uniform expression of opinion that tussac grass cultivation had there proved *a failure*; but there was scarcely a single exhibition of intelligent conception of the

character or objects of the experiment, or of active interest in its success. It was generally regarded as one of the hobbies of a landlord, as ingenious as he is wealthy, who could afford to gratify his whims ; and so long as the islanders were called upon, in or by their own interests, to aid him in these caprices, they were willing to protect or cultivate to the extent to or for which they were desired or paid. So soon, however, as the personal supervision of Mr. Ritchie, and the active interest of their landlord, Sir James, were removed or abated, this temporary and spurious zeal of the custodiers of the tussac plantations was succeeded by their native apathy and indolence : the experiment and its subjects were cast aside like the worn out playthings of a child. It was unfortunate for Sir James and the success of this and other experiments, which are creditable in the highest degree not only to his liberality, but to his persevering philanthropy and his sound scientific views and tastes, that he should have been led or compelled to entrust their management to islanders so destitute of the requisite intelligence and enterprise ; but it may be satisfactory for him, on the other hand, to learn that the failure of such an experiment as tussac acclimatization need be only temporary ; and that, with a more intelligent and watchful class of custodiers, he may yet anticipate the most successful results. There is no reason why the transformation of Orkney, during the last quarter of a century, should not,



*mutatis mutandis*, take place in the Lews. In addition to the more purely physical obstacles to the success of acclimatization experiments in the remoter parts of Scotland, it must be noted here that such obstacles are probably based on popular ignorance and prejudice, the correction or eradication whereof is always a matter of time, though fortunately it is also a matter of certainty in time.

I have a double object in bringing the experiment of tussac acclimatization in the Lews under notice of this Association—viz., (1) That it regards a most nutritious and valuable exotic grass, capable of luxuriant growth on shores otherwise sterile; but more especially because (2) it illustrates a subject that has not attracted that degree of attention in Scotland which it deserves—viz. (a) The necessity as regards success in acclimatization experiments for *imitating the natural circumstances or conditions of growth*; and (b) the inevitable failure resulting from disregard, inattention, or ignorance to or of these conditions.

There are many parts of the kingdom where wonderful improvements may be made on an estate by embankments, and this important subject should always have the attention of the Agent. Immense tracts of valuable land may be gained, not from the sea alone, but from rivers and lakes; and the advantage that would accrue, even by preventing many of those rivers from overflowing their banks, and in great floods inundating the whole adjacent level country, are too manifest to require illustra-

tion. In some places, a bank of only three or four feet in height would prevent hundreds of acres being overflowed, whole crops being carried off, and an immense deal of other damage being done. In other parts, trifling banks might be the means of reclaiming very extensive tracts, which in their present state are probably of little or no value. In Holland, the whole country has in a great measure been gained in this way. Extensive plains, which were once covered with water, now exhibit beautiful farms neatly enclosed, and sub-divided by thriving hedges into rectangular fields. The dykes of Holland are marvels of human industry; and the embankments of the River Po, in Italy, show a skill and application of the practice that excites universal admiration. The following, with reference to the construction of banks and flood-gates, may be useful :—

#### CONSTRUCTION OF BANKS.

A bank, constructed of a given quantity of materials, will just resist the pressure of the water when the square of its thickness at the base is to the square of its perpendicular height as the weight of a given bulk of water is to the weight of the same bulk of the material the bank is made of increased by twice the aforesaid weight of the given bulk of water.

Thus, if the bank is made of stone twice as heavy as water, the thickness of the base should be, to the height, as three to six.

If the height, compared with the thickness of the base, be as ten to seven, stability is always insured, whatever the specific gravity of the material may be.

The bottom of a conical, pyramidal, or cylindrical vessel, or of one the section of which is that of an inverted frustum of a cone or pyramid, sustains a pressure equal to the area of the bottom and the depth of the fluid.

#### FLOOD-GATES.

*To find the strain which a fluid will exert to make the gate turn upon its hinges, or open.*

RULE.—Multiply  $\frac{1}{4}$  of the square of the height by the square of the breadth, and take a bulk of water equal to the product.

EXAMPLE.—If the gate is six feet square,

$$\frac{6^2}{4} \times 6^2 = 324 \text{ cubic feet, or } 20,250 \text{ lbs.}$$

*To find the strain the water exerts upon the hinges.*

RULE.—Multiply  $\frac{1}{6}$  of the breadth by the cube of the height, and take a bulk of water equal to the product.

EXAMPLE.—With the same gate,

$$\frac{6}{6} \times 6^3 = 216 \text{ cubic feet, or } 13,500 \text{ lbs.}$$

To ascertain the mean or average velocity of water in a straight channel of equal size throughout—

Let  $f$  = the fall in two miles in inches;

Let  $d$  = the hydraulic mean depth;

Let  $v$  = the velocity in inches per second; then

the rule is thus expressed,  $v = 0.91 \sqrt{f d}$ . In plain words, the velocity is equal to the hydraulic mean depth multiplied by the fall, with the square root of this product extracted, and then multiplied by 0.91.

The "hydraulic mean depth" is found by dividing the cross section of the channel by the perimeter or border. The perimeter is the aggregate breadths of the sides and bottom of the channel.

The rule will be rendered quite plain by an example. Suppose a smooth furrow is cut 6 inches wide and 4 inches deep, with perpendicular sides, and that it descends one inch in a rod, to find the quantity of water that will flow through it. One inch fall in a rod is 320 inches in a mile, or 640 in two miles. The perimeter in contact with the water will be 6 inches on the bottom, and 4 inches in each side = 14 inches. The area of the cross section will be 6 times 4 = 24, which, divided by 14, the perimeter gives 1, 7 = the hydraulic mean depth. Then, by applying the preceding rule,  $v = 0.91 \sqrt{640 \times 1.7}$  or  $v = 0.91 \times 33 = 30$  inches the velocity per second, which would be about three gallons per second, or three hogsheads per minute.

An open ditch, therefore, with smooth sides, conveying a stream of this size, would carry off in one hour from an acre of land all the water which might fall by half an inch of rain during the wet season, for half an inch of rain would be 180 hogsheads per acre, which would pass off in one hour; or

it would supply in one hour, by the process of irrigation, as much water as a heavy shower of half an inch. Where the descent is greater, the increased quantity may be readily calculated by the rule given. The capacity of smooth-sided underground channels may be determined in the same way; but if built of rough stones great allowance must be made, as they will retard the flow of water.

*Table showing the difference, in Inches, between the true and apparent Level, for distances between 1 and 100 Chains :—*

Chains	Inches.	Chains	Inches.	Chains	Inches.	Chains	Inches.
1	·001	26	·845	51	3·255	76	7 221
2	·005	27	·911	52	3·380	77	7·412
3	·011	28	·981	53	3·511	78	7·605
4	·020	29	1·051	54	3·645	79	7·802
5	·031	30	1·125	55	3·781	80	8·001
6	·045	31	1·201	56	3·925	81	8·202
7	·061	32	1·280	57	4·061	82	8·406
8	·080	33	1·360	58	4·205	83	8·612
9	·101	34	1·446	59	4·351	84	8·832
10	·125	35	1·531	60	4·500	85	9·042
11	·151	36	1·620	61	4·654	86	9·246
12	·180	37	1·711	62	4·805	87	9·462
13	·211	38	1·805	63	4·968	88	9·681
14	·245	39	1·901	64	5·120	89	9·902
15	·281	40	2·003	65	5·281	90	10·126
16	·320	41	2·101	66	5·443	91	10·351
17	·361	42	2·208	67	5·612	92	10·587
18	·405	43	2·311	68	5·787	93	10·812
19	·451	44	2·420	69	5·955	94	11·046
20	·500	45	2·531	70	6·125	95	11·233
21	·552	46	2·646	71	6·302	96	11·521
22	·605	47	2·761	72	6·480	97	11·763
23	·661	48	2·880	73	6·662	98	12·017
24	·720	49	3·004	74	6·846	99	12·246
25	·781	50	3·125	75	7·032	100	12·502



Economy now appears to be the order of the day; but it is false economy to construct works carelessly and inefficiently, merely to save a little in the space of time or a few pounds in the first cost, as works like these are generally found the least expensive in the end that are well and substantially executed, regardless of time or expense. According to modern practice, there seems to be no given rule for the construction of reservoir embankments. At Longdendale the compensation reservoir bank is 27 feet wide at top, the inside slope 3 to 1, outer side 2 to 1, and 90 feet deep (the Crowden reservoir, by the same engineer, is only 15 feet wide at top with similar slopes), while the Bradfield reservoir was only 12 feet wide at top, with inner slopes  $2\frac{1}{2}$  to 1, outer ones  $1\frac{1}{2}$  to 1 (as we found them), and 95 feet deep. The Round Wood reservoir, near Dublin, has a 30 feet width of top bank, with a depth of 60 feet, while the Holmfirth reservoir was only 16 feet wide at top, inner slopes 3 to 1, outer 2 to 1, and with a depth of 96 feet. At Oldham, the Python reservoir has a width of top bank of 30 feet, with a depth of 60 feet, of water, while a reservoir which failed at Over Darwen had a width of top bank of only 8 feet.

Most of the reservoirs were designed and carried into effect by eminent engineers, and yet the practice so widely differs as to be quite incomprehensible; either the larger dimensions are too strong, or the smaller ones ridiculously weak; it is evident "there is something rotten in the state of

Denmark," and this must be patent to the most casual observer.

We do not find these defects and errors of design amongst the works of our Telfords, Walkers, Rennies, and other worthies. Telford's usual practice was to proportion the top width of his embankments to be equal to two-fifths of the depth, with inner slopes 3 to 1, outer slopes 2 to 1, and many of these works have withstood the invaluable test of time, and are more than half a century old. Molesworth, in his *Tables on Reservoir Dams*, gives the top width of *high* dams at from 7 feet to 20 feet, without particularly specifying a definite width for height of embankment, although it is important and absolutely necessary there should be a sufficient body and strength of embankment to resist the weight of water pressing against it, as the pressure of water is as the square of the depth, therefore the resistance should be in a similar ratio.

The inner slopes he recommends should be 3 to 1, and the outer ones 2 to 1, the generally admitted proportions for slopes.

*Angles of Slopes in Cuttings or Embankments.*

Slopes.	Angles.	
	°	'
$\frac{1}{2}$ to 1 . . . . .	63	26
$\frac{3}{4}$ to 1 . . . . .	53	8
1 to 1 . . . . .	45	0
$1\frac{1}{4}$ to 1 . . . . .	38	40
$1\frac{1}{2}$ to 1 . . . . .	33	41
2 to 1 . . . . .	26	34
3 to 1 . . . . .	18	26

*Table for Running on Slopes.*

In the following table the first column shows the angle, the second, the number of links to be added to a chain on the slopes, to make one chain, horizontal measurement.

Angle.	Cor. in links.	Angle.	Cor. in links.	Angle.	Cor. in links.	Angle.	Cor. in links.
0		0		0		0	
4	0.24	11	1.88	18	5.14	25	10.54
5	0.38	12	2.24	19	5.76	26	11.26
6	0.55	13	2.63	20	6.42	27	12.24
7	0.76	14	3.06	21	7.11	28	13.37
8	0.98	15	3.53	22	7.85	29	14.34
9	1.24	16	4.02	23	8.64	30	15.47
10	1.55	17	4.56	24	9.47	35	22.07

Again, along our coast and estuaries, are extensive tracts of salt marshes, or flat lands, abounding in fertility, overflowed, some of them regularly and others occasionally, by the ocean tides. These marshes, with some cost of ditching, produce what is called "salt-hay," which is cut with great labour at low tides, and generally stacked where it grows, upon stakes driven for the purpose. It is valued and usually sold at about half the price of the best upland meadow hay, and, mixed with other fodder, is eaten by cattle for lack of better, and sometimes by way of a condiment even by cattle that are well fed. It has been doubted by many whether this salt-hay is worth the cost of cutting, or, in other words, whether the labour requisite to ditch the marshes, and cut, cure, and haul the hay, could not be more profitably applied to other branches of farm

labour. By many experiments, on a small scale, in this country it has been proved that these salt-marsh lands, after the tides have been kept out of them a few years, are extremely fertile, and, being free from stones and other obstructions, are easily cultivated, and so are likely, when a systematic mode of reclaiming them shall be adopted, to prove a most valuable acquisition to our farmers upon the ocean shores.

Also along our rivers and streams are considerable tracts of flat land, flooded in times of freshets, and at all times filled with cold or stagnant water, which are almost wholly unproductive. On many of the streams, too, and at the outlets of the lakes, are dams for the use of saw-mills, grist-mills, and factories, and the lakes themselves are used as reservoirs to keep back water for the use of the mills in time of drought. By these obstructions to the natural flow of the streams, thousands of acres of the most valuable land are rendered worse than useless; for the water is kept up till midsummer, and drawn off when a dog-day climate is just ready to convert the rich and slimy sediment of the pond into pestilential vapours. This evil has attracted some attention in Scotland. In many parts of that country small lakes and dams are kept up for the sake of mills under old tenures, and, if these were drained, the land gained by the operation would, in many instances, be worth ten times the rent of the mills. These swamps, ponds, and stagnant meadows

might all be drained, and would afford vast tracts of fertile land. Now, while we should never advocate any attack upon the rights of mill-owners, or ask them to sacrifice their interests to those of agriculture, it surely is proper to call attention to the injury which the productive capacity of the soil is suffering, by the flooding of our best tracts, in sections of the country where land is most valuable. Could not the mill-owners, in many cases, adopt steam instead of water power ?

Much valuable land on the banks of rivers and rivulets is often laid waste by the encroachments of floods. A few words on this important subject seem to be necessary. It may be laid down as a principle in natural science, that water is irresistible, and therefore it must not be resisted—it must be humoured. Streams and rivers run for ever. The tomb of Moses is unknown ; but the traveller slakes his thirst at the well of Jacob. The gorgeous palace of the wisest and wealthiest of monarchs, with the cedar, and gold, and ivory, and even the great Temple of Jerusalem, hallowed by the visible glory of the Deity himself—are gone ; but Solomon's reservoirs are as perfect as ever. Of the ancient architecture of the Holy City, not one stone is left upon another ; but the pool of Bethesda commands the pilgrim's reverence at the present day. The columns of Persepolis are mouldering into dust ; but its cisterns and aqueducts remain to challenge our admiration. The golden house of Nero is a



mass of ruins; but the Aqua Claudia still pours into Rome its limpid stream. The Temple of the Sun at Tadmor, in the wilderness, has fallen; but its fountain sparkles as freshly in his rays as when thousands of worshippers thronged its lofty colonnades. When London shall share the fate of Babylon, and nothing be left to mark its site, save mounds of crumbling brickwork, the Thames will continue to flow as it does now. It is useless, therefore, to “resist” water. All windings in streams are caused by resistance. The water, in rushing onward, dashes against a projecting stone or hard part on one of its banks; this sends it in an opposite direction, in which it runs till it again strikes against an unyielding obstacle, with the same result. This process of interruption soon causes a mouldering of the banks in opposite directions, so that at length the water runs in a zig-zag or serpentine course. All this might have been avoided by allowing the water a perfectly free course. The damage done to lands by flooding has led to numerous experiments for keeping the water in its channel, but seldom with any degree of success; because the attempts have been to hem in the current by sheer force. In all cases in which it is desirable to keep out tides or high floods from lands, the only secure method consists in giving the banks such a slope that they will present no resistance whatever, but allow the water to rise and subside with equal ease and tranquility. As a

general truth, the greater the slope the better ; and it should never be less than a foot and a half for every foot in the height. Employ no stones or stakes, or anything else, for the current to catch upon ; but cover the slopes with smooth turf, at a season which will allow of its growth before the floods set in. If any patches get broken, let them be annually mended. To keep out high floods, the banks must be made correspondingly high. Artificial embankments, in a flat country, should assume the form of a long mound, sloping on both sides. Notwithstanding the obvious utility of this simple and inexpensive mode of protecting river banks, instances of damage are constantly occurring from the adoption of an opposite method. Mr. Stephens mentions the following as one of many within his knowledge :—“ An embankment was thrown round the small island Mugdrum, in the River Tay, to protect the land from being overflowed by the tide ; but it was made so steep that the first spring tides levelled the greater part of it to the ground. A second attempt was made, with the additional expense of a stone wall facing the water, which shared the same fate with the former bank. Since these failures, a third embankment has been erected with nothing but the natural soil of the land, and the whole covered with thin turf. The length of the present slope next the sea is five times the perpendicular height of the bank, and the inner slope three times ; the water meeting no resistance,

rolls down the long slope without doing any injury."

In connection with the protection of river banks, we may say a few words on the method of gaining land from rivers and tidal estuaries. This may be done if the river straggle over an unnecessarily wide space, and brings down quantities of mud sufficient to form impediments to navigation. The process usually followed with most advantage is to run out at intervals short rows of stakes, matted with twigs, calculated to catch the particles of mud, but to allow the water to pass through. A sediment is thus gradually formed between the rows; in time, it rises above the water, and ultimately forms a green productive surface. When the water is affected by the tides, a row of loose stones laid between high and low water mark will similarly catch mud and sand, and, while forming new land, will, by narrowing the channel, give greater impetus to the stream, and help to deepen its bed. When done on a great scale, the bed of the river is scooped by mechanism, and the rubbish brought up may afterwards assist in elevating the newly-formed banks. In point of justice to all parties, any of these processes of river-bank improvement should be done on both sides of the river at the same time; for, if effected only on one side, the water may be driven to the opposite shore, to the serious damage of the land in that quarter.

In addition to what we have said upon the subject

of irrigation in our book "Hints on Farming," we may go on to say that irrigation is the act of supplying water to land to increase its fertility, and lands so treated are generally called water meadows. There are two modes in which the water is applied. First, as on what is called a catch-water meadow ; in this case a stream of water is conducted along the side of a sloping ground, and the water, descending from the carrier down the side of the hill, flows evenly over the surface. The second plan is by what is called bed-work. In this the land is laid out into beds having two open channels for water, one at the level of the highest part of the bed, which, overflowing, causes the water to flow down the surface of the land into the second or lower drain, which carries it away. Hatches, or sluices, are fixed along the line of the carriers or high level water-courses, to allow of the water being applied to the different divisions of the land in their regular turn. It is now considered better to water land with the hose and jet than to construct very expensive artificial works for the purpose. Nevertheless, there are many situations where a small well of water may be turned to wonderful account if judiciously applied, especially in the form of catch-meadows. In some parts of England large works have been erected for watering land, the most important of them being situated near Mansfield, in Nottinghamshire, and called the Clipstone Water Meadows. They are the property of the

Duke of Portland, and, without exception, the finest engineering works of the kind. The sewage water from the town of Mansfield runs into the river that supplies them, and of course adds much to their fertility. Soil which was poor and sterile, and its produce value all but *nil*, now yields from £11 to £12 per acre per annum, a return of  $9\frac{1}{4}$  per cent. upon the capital invested. The per-acreage cost of this work was large, but the per-acreage profit is large also, large enough to have years ago repaid the capital invested, leaving nothing but profit for the present and the future. One of the most valuable features of this example is, the evidence it affords, at the present day, that the process is not an exhausting one,—there is no depression in produce value; the 300 acres of the Duke of Portland's water meadows, and 103 acres subsequently irrigated from the same stream by the late Earl Manvers, have gone on from their formation to the present time, yielding every year a large amount of grass for mowing green, of hay, of beef, mutton, and wool, upon land which, if left to itself, would be all but sterile.

The following remarks on the management of the water meadows are exceedingly interesting. In the beginning of January, Southdown ewes, with lambs bred early for this purpose, are turned on the meadows. In this early season they are assisted with cabbages; but the ewes and lambs always do well on the meadows, and they appear to be particularly



healthy for the lambs, very few dying suddenly, as will often be the case on fresh seeds. Ewes are put on with their lambs as these are born and gain strength; and in this way, from January to the end of March, and in some parts till much later in the spring, even till late in May, the meadows are devoted to ewes and lambs. The lambs are fed fat, and are sold at that time of the year at from 24s. to 30s. each. The land is then shut up in succession; some portion at the beginning of April, other portions later. The most forward meadows will be ready for cutting green by about the middle of May, and will yield from sixteen to twenty good cart-loads of green fodder per acre, which is carried to cattle in yards. In about six weeks a second crop is ready, which, with the allowance of time necessary to clear the first crop from the ground, and to apply the water, will carry this second cutting to the middle of July. After this an eddish will be left to be eaten by sheep and cattle in the autumn and early winter. The meadows which are first cut will frequently allow of a third cutting of green food, but the eddish in that case will of course be of less value. Speaking, therefore, of the whole range of meadows, to say that, besides the sheep feed in the spring, they will afford two green cuttings and an eddish, is to be rather under than above the mark. Some portions having been stocked late, are allowed to stand for hay, and are mown early in July, yielding two tons to the acre, and leaving, as

in the other case, an eddish for the early winter. The value, however, of these meadows cannot by any means be estimated by the worth of their own produce alone, however large that may be, their collateral benefits are so great. Requiring themselves no manure but the water, they afford, through the cattle fed in yards on their produce, such a weight of manure for other land, that large districts have by these means been brought into profitable cultivation; and, though the water itself runs over only about 300 acres, it may be said to enrich five times that extent; and, again, by the early food they supply in the spring, stock can be kept of the young seeds till they have gained a head, which is a most important advantage on a farm, and one that, if a dry summer should follow, can hardly be too highly appreciated.

An abundant supply of water is of the utmost importance, and cannot be too highly appreciated. Of organic bodies, whether vegetable or animal, water is a large constituent during life, and a powerful solvent after death. Potatoes, for example, contain seventy-five per cent.—by weight—and turnips no less than ninety per cent. of water; which explains, by the way, the small inclination of turnip-fed cattle and sheep for drink. A beef-steak strongly pressed between blotting-paper yields nearly four-fifths of its weight of water. Of the human frame, bones included, only about four-fifths is solid matter—chiefly carbon and nitrogen;—the

rest is water. If a man weighing 160 lbs. were squeezed flat under a hydraulic press, 120 lbs. of water would run out, and only 40 lbs. of dry residue would remain. A man is, therefore, chemically speaking, a little more than fifty pounds of carbon and nitrogen diffused through six pailfuls of water. Berzelius, indeed, in recording the fact, justly remarks, "the living organism is to be regarded as a mass diffused in water;" and Dalton, by a series of experiments tried in his own person, found that of the food with which we daily repair this water-built fabric, five-sixths is also water. Thus amply does science confirm the popular saying that water is the "first necessary of life."

The manner of applying the stream from Mansfield, so as to extend it over the entire surface of the meadows, is explained in the following communications:—

*Extract from a Letter from Charles Neale, Esq.,  
Agent to His Grace the Duke of Portland.*

"Mansfield, Woodhouse,

"Feb. 28th, 1865.

"About sixty acres can be watered at one time now, but in dry weather not more than forty acres, and during the extreme dry weather of last summer not more than ten acres could be irrigated at one time. The water that has flowed over the top meadows is used over again for the lower meadows. The water is usually kept on two days at a time

throughout the year, once in nine weeks, except in floods, when it passes over the whole more frequently."

*Extract from a letter from John Horncastle, Esq.,  
Agent to Earl Manvers.*

"Thoresby Park, Ollerton,

"January 9th, 1865.

"Of the 103 acres of water meadows, eighteen or twenty acres can be laid under water at one time,—of course the quantity of water will depend on the season; if it is wet, nine acres of the upper and nine acres of the lower part can be under water altogether; but if it is a dry time, a less quantity is watered in squares. Upon the whole, however, we can manage about eighteen acres satisfactorily, and so complete the whole surface, by keeping the water on about two days and a night at a time."

A new system of well-sinking has been imported into this country—commendable by the facility with which the well is sunk, as well as by the cheapness and rapidity of the operation. Its inventor accompanied the Northern army during the late American war, and was instrumental in procuring by his method an unfailing supply of water for the troops. The well consists of an iron pipe  $1\frac{1}{4}$  inch in diameter and about 12 feet long, pointed at one end, and perforated with holes for about 16 inches from the pointed end. A moveable iron clamp is fitted round the pipe, and, upon the principle of pile driving, a

56 lb. hollow weight is raised, and allowed to drop upon the clamp, and thus the pipe is driven into the ground. The earth, sand, &c., which first enters the pipe through the holes, is pumped out, and then the larger pebbles form a natural filter around it. A well formed thus receives no surface drainage, and the water yielded by it is always cool and fresh. No dirt is made in sinking the well, no accident is possible from foul air or falling in of the sides, and the cost of sinking a well fifteen feet deep is but £5. Of course if rock is encountered during the sinking, the operation becomes more costly and tedious. A few days since a number of gentlemen assembled upon the cricket-ground, Old Trafford, Manchester, to witness the sinking of one of these wells. Water was reached in five minutes from the commencement of the work, and in twenty-two minutes a depth of ten feet had been pierced. The pump had been fitted to the top of the well, and a good flow of water had been obtained.

As it is important that the Land Agent should be able to estimate the stock necessary for each farm on the estate under his charge, so as to form an opinion as to whether a tenant has sufficient, the information will be found in our works entitled "Hints on Farming."

The Bailiff occupies an intermediate position between the owner and those with whom he has dealings. Hence, although retaining his individuality, it is right that he should, as far as possible,



carry out the views and intentions of the principal. If a resident Agent has the control, he in most respects represents the owner; it is, therefore, well that there should be a fair understanding at the outset. The principal or his Agents have *the right* to interfere or to direct at any given time; and if the Bailiff acts wisely, he will give such general directions as will insure *their* orders being attended to, though his own for the time shall remain unfulfilled. But this is a right which few honourable men care to exercise, except in an unforeseen emergency. The employer may also purchase, either personally or by commission, any stock which his taste or fancy may incline to. It makes no difference in the world to the Bailiff but to lessen his responsibility; let his temper, therefore, remain unruffled. In a case which occurred some years ago, where the owner was fond of buying and selling personally, a very great mistake had been committed in the purchase of a lot of Irish animals, which, with all the feeding that could be given, had ultimately to be turned out at a sacrifice. "I told your Lordship so," said the Bailiff; and a cheque for the quarter's salary was the immediate result of that morning's remark. It is of no use to offer an opinion, unless such opinion is asked or expected; for the principal has a perfect right to take that share in the management personally which he sees fit.

Times, also, will occur when the manager is re-

quested to be in attendance upon his employer, and that, too, at a period when business urgently claims his presence elsewhere. By all means attend the former, and make such arrangements as you best can for the latter. Country gentlemen especially have often so many engagements on hand that they cannot afford to wait, but must be waited upon; besides which, they pay for such attention.

In regard to the settlement of accounts, it is well to obtain a receipt for all moneys paid, small sums (say under half-a-sovereign) alone excepted. Though such is not the custom in farming management generally, it presents but little difficulty in practice. The manager should be provided with blank forms of receipt, and the filling-up is only the work of a moment, while the satisfaction and clearness it affords can hardly be estimated too highly.

In relation to the other parts of the establishment, the Bailiff holds an important position; as farm supplies of various kinds (labour or assistance sometimes included) bring him into connexion with most of the other heads of departments. Seek to maintain a good understanding; let what supplies are wanted be promptly and cheerfully given; and endeavour to keep up the credit of the establishment by honourable dealings towards all. As to the men, it is quite possible to retain friendly connexion with them, while at the same time full value is obtained for the wages paid. Punctuality in hours, strict supervision, and kindly feelings, will tend materially

to lighten the burthen of labour. No begging for gratuities should be tolerated; and it would be better far, if that constant source of annoyance, beer, were banished from business relations between employer and employed. But unhappily upon many a home-farm the tap runs too freely, part of the wages being thus paid in money and part in beer, disputes and vexation being the invariable result. In this respect the Bailiff has often in his hands a great power for good or for evil. Let such power be exerted in the right direction, and home-farms will stand higher, and their utility be more acknowledged. The great point on which most of us err is, in mistaking stimulation for strength. A pint of ale produces a temporary effect, which, however, terminates in reaction. Nothing but substantial and nutritious food can effectively repair the waste of the system. The Steward should invariably insist on money-payments without beer.

We cannot too forcibly impress upon Stewards the importance of being assured that the articles they purchase are genuine; and the absolute necessity, therefore, of buying only by a guaranteed analysis, and of proving its correctness by a check analysis of a sample taken from the bulk delivered. By this means any difference in value may be adjusted *before* application, and disputes avoided; for it is hopeless to look for redress *afterwards*, on the ground that the results did not come up to expectation. Makers of chemical manures buy the

materials they use by analysis : were this precaution neglected, the manufacture of manures would be a thing of chance instead of calculation and science. It would be most beneficial to the interests of landed proprietors did their Agents possess a greater knowledge of agricultural pursuits than they usually do. They would thus be enabled to bring to bear their powerful influence and enlightened minds in promoting and encouraging a better system of cultivation than is generally practised. They ought to be thoroughly conversant with agriculture, scientifically as well as practically. Science is always safe. It does not lie. It deals with fixed principles. It touches bottom at every point, so far as it goes. It does not send men off upon a wild-goose chase after something that is not there. It does not simply leave them to arrive at results only after a long and expensive course of experimenting. It starts with fixed facts. It has analysed things to their elements. Again, every branch of business becomes interesting and attractive to the mind in proportion as we master its details and thoroughly understand it. That which is dry and barren on a mere superficial view, is full of life and meaning to him who has studied and comprehended it. When a farmer can penetrate the mere surface of agriculture to the more hidden processes which are going on all about him, he dwells in a little world of his own, a most interesting world too, and one which has within it abundant sources of thought and

delight. If farmers would thoroughly study the science of agriculture, and master it, they would, by that very process, bring their minds in contact with many sorts of knowledge, and the field of their intelligence would be greatly enlarged. All knowledge is connected, and it matters little what branch of study you pursue. If you take up any one, and follow it out thoroughly, you inevitably come in contact, in a merely incidental way, with all sorts of knowledge. The whole intellectual nature is quickened and expanded. It can be made profitable. It can be turned to great account in reference to the actual income of a farm. There is no manure so cheap as a wholesome application of science. It prevents useless outgoes and secures an income. Moreover, Agents ought to possess a thorough knowledge of the character of the people. To do this they must go forth into the country; they must sojourn in villages and hamlets; they must visit farm-houses and cottages; they must wander through parks and gardens, along hedges and green lanes; they must loiter about country churches; attend wakes and fairs and other rural festivals; and cope with the people in all their conditions, and all their habits and humours.

An Agent should be extremely cautious in going in any way between a non-resident Agent, and the proprietor who happens to reside on his property. There are men foolish enough to avail themselves of their frequent intercourse with their employer to do



serious injury, by false or exaggerated statements, to the Agent, who is not present to defend himself. This is more frequently done from selfish motives than from any desire to promote the interests of the proprietor ; and if the latter acts as he ought, and informs the accused of the charges brought against him, the accuser may find his usefulness gone, and, in nine cases out of ten, even his employer against him, as well as the chief Agent. If the sub-manager believes that his superior is not qualified for the position he occupies, he, of course, will have a right to entertain his opinions, without any one saying that he is wrong ; or he may even state his convictions to his employer. But, in all such cases, he would require to feel his ground perfectly safe under him before he ventures to criminate an officer to whom he owes obedience, and who should only be condemned on clear and unmistakeable grounds. We refer to this, because we have known cases in which proprietors, who permitted the inferior Agents or Bailiffs to come to them with tales, have found themselves at variance with their principal Agents ; and, not unfrequently, time has proved that these Agents were really in every way deserving of their confidence, though deprived of it for a season by the selfish evil-speaking practices of subordinates.

The following observations, from the pen of Mr. Buckland, the author of the prize essay on the "Farming of Kent," are worthy of consideration. He says :—" I know of estates in this country that,

under an enlightened system of management, might be made to yield from twenty-five to fifty per cent. more rent, with an equal advantage to the tenantry. I think that a Steward should not only be a man of general intelligence (keeping pace, by reading and observation, with the daily advancing state of agriculture), but should likewise possess great firmness of purpose and strength of moral character. He might and ought, as the representative of his employer, to promote and strengthen a spirit of inquiry, correct habits of observation, and inculcate purer and more elevated tastes among the tenantry and the labourers. A judicious man, of a candid and liberal spirit, might do much for these objects among the rural population, without any kind of petty intermeddling or stepping one inch beyond the strict line of his duty. The relation between landlord and tenant is of a delicate and most interesting nature, as likewise is that between the labourer and his employer, and might be made to yield the best results. The grand thing is for all parties to cherish an increasing conviction of this moral force of the relationship."

It may seem startling that rents might be raised so much. We know, however, some farms whose tenants would realise fair profits even if their rents were doubled, though their present outward appearance would seem to indicate that they are rack rented. This comes of ignorance and lazy habits—of being destitute of that energy which is indis-

pensable to success. Whatever may be thought of it, the fact is, that the lowest rented districts are often the worst farmed, even when the land is naturally good. A certain amount of competition is necessary to bring the rent of land up to a proper standard; but some of our more extensive proprietors would rather suffer a heavy loss in retaining their old tenants than think of exposing their farms to a healthy competition. The necessary result of this state of things is, that farmers go on from one generation to another without making much progress in either the science or practice of agriculture. It may be all very well, from the influence of old associations, for landlords to kindly let their farms on low terms. Kindness, however, to individuals and duty to one's country are two different things; and, if the latter is neglected in order that the former may be observed, there is, positively, no credit in the action, but actual discredit.

It is quite astonishing the advance of rents, especially in Scotland. For instance, the farms of Moodlaw and Raeburn, Eskdalemuir, in Dumfriesshire, have recently been let to Miss Hope Johnstone, of Marchbankwood, at £1500 per annum; being an increase of £683 on the old rent, £817.

Notice has been given to the tenants of the Selkirkshire farms of the Duke of Buccleuch, whose leases expire at Whitsunday next, that the rents will be largely increased. It is understood that the rise on the better class of farms will be sixty to

eighty per cent., while the advance on the others will be from thirty to sixty per cent.

We could instance several farms which have been let at twenty to forty per cent. above the old rents. Such results speak chapters in favour of high farming.

Alderman Meechi, than whom no man has done more to advance the cause of science in connection with agriculture, says:—"Our British agriculture must progress with the other interests of the country. I often, on a summer's morning, before the business of London commences, take a reflective stroll, and ponder on our rapid increase of wealth and intelligence, as evidenced by our new and magnificent streets and buildings; queer, old, quaint buildings are swept away, and you see rising in their room business palaces, involving enormously-increased rentals, and built of stone and iron, as if never to decay. This is real economy where there is capital, and I naturally, on these occasions, wish that I had on either side of me the prejudiced defenders of our rotten and inefficient farmeries, exhibiting in their decay the rotten thatch and dripping eaves—the beau ideal of rustic landscape. If we have capital in this country—and who can deny that we have it in superabundance?—let it avail to give to agriculture a higher and more dignified, more intelligent, and, consequently, a more profitable position. The clumsy appliances and prejudiced neglects of antiquated agricultural cus-

toms are *not* profitable. The men who now suffer most in agriculture are precisely those whose ill-farmed, wooded, small, and undrained fields, and unimproved buildings, are slowly but surely absorbing the tenant's capital, binding him in poverty and discontent. It will be a happy day for the tenantry of this country when their rents are doubled, provided that increase represents a proper interest for necessary improvements. This takes place in our towns and cities—why not in our agriculture?"

For such an unsatisfactory state of things the Agent is at times to blame; and a better condition can only be accomplished successfully by wise management, and by landowners securing men of talent and integrity, practical and scientific farmers, for Agents. A thorough knowledge of agriculture and of the value of land is of the first importance to the Agent, and is indeed the only means by which he can hope to improve the property of his employer, or enable him to act justly by the tenants, and this knowledge must be backed up, as we have already said, by many other attainments. There are instances in which Agents have been selected for their daring in the hunting field, for their skill with the gun, for their success in the stable or in the pantry, for anything and everything but the knowledge requisite for an Agent's duties, and the failures have been as signal as they were deserved. It is, in fact, suicidal in noblemen and others, pos-



sessed of extensive landed property, not to employ practical farmers for this office; thus, not only increasing their own knowledge of agriculture, but enabling themselves to point out errors in the system adopted by the occupiers of the several holdings, and to propose a better; and by so doing to assist in the elevation, not only theoretically but practically, not only politically but morally, of the labouring and productive classes. In many instances, the sons of farmers, furnished with a liberal education, are the men who will make the best Agents. It matters little whether they are the sons of professional men or of tradesmen. The chief thing is that they possess that particular kind of knowledge which shall enable them to develop with advantage the latent resources of the estates of which they are to have the charge. It should be observed, that a merely practical man will labour under many disadvantages in the management of an estate; but a purely theoretical one will be in a still worse predicament. Theory and practice must go hand in hand to result in drawing forth the latent capabilities of the soil, and in the satisfactory management of property. To manage an estate successfully a good deal of knowledge and a high degree of intelligence are necessary, and these are to be obtained partly by science and partly by practice. There is no doubt that a scientific man is liable to make mistakes, partly because his science is not thorough enough, and partly because very

much of what is most important can be learned only by personal observation. It is the *union*, therefore, of science and practice which alone can make a perfect farmer or Agent. It is often supposed that the scientific principles necessary for intelligent farming are difficult to be understood, but this is very far from being the case.

It is a position not to be controverted, that the cultivators of the soil, the agricultural class, constitute the basis of society—the foundation of our social and political system. Indeed, the business of agriculture, ever productive, honourable, and untrammelled, furnishes a refuge for those who are driven from other employments by the force of circumstances, by excessive competition, by the substitution of machinery for manual labour, and by other causes. It affords an asylum to disappointed hope, to exhausted energies, and to satiated ambition. They return, like the dove to the ark, to that refuge where peace, competence, and independence dwell. We would, however, impress upon every farmer the importance of being very careful in the selection of his home in the first instance, and to look more to estates where disappointments are the exception, bearing always in mind that “a rolling stone gathers no moss,” and that there is some truth in the common saying that “three removes are as bad as a fire.” A facetious Yankee, however, remarked to us one day, whilst riding over a parched district of Mexico, “I guess, though, that

still water gets tarnation foul." A sound remark, probably: but we write of our own experience.

We have already said that an estate can only thrive when there is full co-operation between landlord and tenant. It therefore follows that, whether the undue preservation of game or the tyrannical rule of a gamekeeper be the cause of a misunderstanding between them, the loss to both, but especially to the former, must be no inconsiderable amount. The landlord may receive the rent promised, but the tenant will take care to draw all he can out of the soil. There is, indeed, no more fruitful source of dispute between landed proprietors and tenant-farmers than questions connected with game. Both have been sufferers, but landlords have invariably been the greatest losers. Tenants seldom object to a fair sprinkling of pheasants, partridges, and hares; but rabbits are so very destructive that they cannot be tolerated. We know properties sustaining such a large quantity of game and rabbits, that the estimated loss is ten shillings an acre. When landed proprietors keep much game, the agricultural land immediately adjoining the woods or preserves, should, we think, be kept in their own hands to produce food for them. No doubt every landowner has a perfect right to have as many preserves on his own estates as he pleases, because he is really the loser if they are carefully kept. The fact that they are so, soon becomes known, and persons offering for his farms,

take care to give lower rents accordingly. Moreover, if game be the property of any one, it belongs to the proprietor of the estate it is upon. He is therefore entitled to protect it, as he would protect a herd of deer or a flock of sheep against thieves. But then there are two ways in which property may be held. The man who buys an animal at market is an absolute owner of his purchase. It is his to-day, his right hand neighbour's to-morrow, and his left hand neighbour's the day after. In this absolute sense, however, there is no proprietary right to game. The four-footed beast, or the bird which is feeding on a domain to-day, is for the time being the property of the owner of the domain, as it may be the property of some adjoining landowner on the morrow. It is a beast or bird of passage, in a restrictive sense, and can be no more absolutely owned than the roe deer skipping across the country, or the swallow coming to our shores for a brief period in summer. A rabbit-warren is always a nuisance, and often a bar to improvement. Dr. Robertson, as Commissioner of His Royal Highness the Prince of Wales, has issued a circular to the tenantry on the estate of Birkhall, intimating that the Prince has been pleased to grant them the right to snare hares and rabbits, except on the open hill. The intimation has been hailed with satisfaction. The tenantry had previously presented two petitions on the subject, and the result of these had been that men were employed to kill the game;

but as these did so ineffectually, the circular is regarded as a step in the right direction. It would be well if proprietors generally looked upon rabbits as "vermin," and followed the excellent example of His Royal Highness the Prince of Wales.

The *Melbourne Argus* affords a notable example of the way in which the rabbit increases and multiplies on a favourable soil:—Eight years ago fourteen rabbits were turned out in Mr. Austin's estate of Barwon Park. The number of their progeny shot last year on this estate was 14,253; and in spite of this destruction, and what goes on outside the estate, they have swarmed over the neighbouring country, and have been found at considerable distances around. Laurence relates that an estate in Lincolnshire, upon a blowing sand, having been stocked with rabbits by the sufferance of an indolent Agent, was burrowed by them to such an extent, that a hundred and fifty acres of good land in the neighbourhood were covered in less than a year with deep sand carried thither by the winds. Rabbit-warrens are clearly injurious; and it is for the Agent to make the experiment and ascertain whether a warren broken up would not succeed under sainfoin grasses or the lighter corn crops. Should irrigation be practicable, success would be beyond all question. It should be borne in mind that gamekeepers are as a rule great talebearers, and their complaints should be received with caution, as they frequently cause



much annoyance to farmers, and often create misunderstandings between them and their landlords. Gamekeepers generally have the ear of the proprietor, and are not backward in throwing out hints and surmises which too often end in setting him against highly deserving tenants. In short, when farmers be-dinner and be-dram them, and keep on good term with them, all goes on well; but when they pay them no attention, and disregard their assumed authority, they find them most bitter enemies. This has been our experience on some of the properties under our charge. We, however, also paid attention to the representations of the tenants, and soon discovered that the keepers were not only jealous, cunning, and deceitful, but that their reports and statements were utterly groundless; and, as we deemed it conducive to the interests of the proprietors to terminate their engagements, we did so, much to the relief of the highly-respectable and deserving tenants. In short, all talebearers should be at once checked, for they usually give an admixture of truth and falsehood, which does as much harm to ordinary minds as the absolute lie. As Tennyson says:—"A lie, which is half a truth, is ever the worst of lies." A lie, pure and simple, will generally, at some time or other, be seized by the throat and held up to universal scorn as a detected crime and a manifest meanness. But where there is a subtle and insidious blending of false and true, the task of discrimination

is much harder, and the result must be always uncertain.

It will interest a good many persons (says the *Times*) to find that the British Association for the Advancement of Science foresees the necessity of taking the Game Laws into its professional consideration. Some people will be anticipating the co-operation of this learned body in a crusade against "feudal tyranny," especially as a speaker at the late meeting declared that members of Parliament and country gentlemen in general were grossly ignorant of their duties on the subject. Others will expect a protest against over-preserving; and others, again, a scientific opinion upon the rights of property to be recognized in animals wild by nature. For none of these things, however, did the Association care. It looked at the question from a point of view to which the readers of these columns have been often directed, and which we may, perhaps, claim the credit of introducing. Grouse and partridges were, in the eyes of the Dundee philosophers, simply as important as pigeons and fieldfares—neither more nor less so; but it was argued that they, and other creatures with them, were suffering from the unnatural effects of a vicious and mistaken system. Gamekeepers, like gardeners, have been unable to understand that every creature has its place in the order of nature, and that this order cannot be deranged by man without destructive results. Gardeners and farmers would exterminate small birds to save their

crops and fruits from peculation, and the consequence is that grubs and caterpillars, which would otherwise be devoured by the birds, increase and multiply in quantities sufficient to ruin the crop altogether. Gamekeepers destroy vermin and birds of prey to save the game from their depredations, and the consequence in this case is, not only that rats and other animals, which do more mischief than hawks, get the upper hand, but that the growth of game itself is materially interfered with. On this question, which was made the subject of a special paper, some curious arguments were submitted to the meeting.

This year, as most readers know, there has been a disease among the grouse in Scotland, and the misfortune has been ascribed, with more or less probability, to a variety of causes. One of these, however, which was selected for assertion and illustration by Mr. Tristram, is certainly worth consideration in whatever degree it may be actually answerable for the disappointments of the present season. According to this theory, game preservers have actually destroyed their own game by the measures they adopted to protect it. The keepers received orders, or were perhaps induced by their own instincts, to kill all birds of prey coming within their reach, insomuch that not a specimen of the rapacious tribes could be found upon the ground. Now, a hawk does more than kill vermin which would otherwise kill game. It kills game also, but

this, contrary to the common impression on the subject, is actually desirable in the interests of the game preserver. All races of wild animals are thinned out by the attacks of other races which prey upon them, and this species of clearance enters into the scheme of nature for the maintenance or improvement of the breed. The whole race is kept up to a good standard by the destruction of weakly and degenerate specimens, which are always those selected by the predatory tribes. In the present instance, we are assured that if kites and falcons had been allowed to discharge on the Scottish moors the functions assigned to them by nature, the grouse disease would either never have broken out or never have been appreciably disseminated. Every sick bird would have been snapped up by the keen-eyed foragers, and the plague would have been "stamped out" as effectually as the rinderpest last year.

There is some novelty about this theory, and perhaps it will hardly sustain quite so much in the example before us as it was made to carry, but it rests, at all events, upon a foundation of truth. Nature never intended every young grouse to live. To whatever extent we may embrace the Darwinian theory of selection, we must at any rate admit that the removal of the weak specimens of a race for the benefit of the strong does express a distinct purpose in the order of nature. Predatory animals fulfil this purpose. Owners of fishing grounds know full well that the existence of pike in a stream is abso-

lutely essential to the production of good fish. If it were possible for a keeper to kill every pike in the water, the result would be the destruction of the preserve, which would contain nothing but swarms of small fry too numerous for the pasture and useless in themselves. Yet this is exactly what is done when every falcon upon an estate is shot. The bird of prey not only keeps down other predatory animals, but leaves the protected broods themselves in better condition. Nature, in short, has established a balance, and it is presumptuous as well as absurd for us to imagine that we can improve things by disturbing it.

This view of the subject received, as might be expected, the unanimous approval of the scientific debaters at Dundee; indeed, many illustrations were offered of the errors of our present system. Even our growing timber suffers injury. Dr. Grierson described the ravages effected in certain plantations at Drumlanrig by creatures called "voles," which are probably new even to ordinary naturalists. To some extent these animals resemble mice, but are more closely related, we are told, to the beaver tribe. They are not peculiar to Scotland, but are pretty generally distributed over the British islands, only hitherto they have been kept down, out of sight and out of mind, by the agency of weasels and other such depreciated "vermin." Nor could they ever make any head or do any mischief except for the utter destruction of their appointed enemies;



but this, in the Scottish woods, has been accomplished by the watchful gamekeepers, and the result is the sudden appearance of unsuspected creatures which may do as much mischief as the white ants of the tropics.

But the arguments of the zoologists did not, we are happy to say, stop here. As we have already remarked, these impartial philosophers looked at grouse not as game, but merely as living products of nature. They claimed reasonable "preservation," not for certain feathered tribes, but for all. Professor Newton, of Cambridge, held that the Game Laws should be extended to all birds "out of season;" another speaker protested against the wanton destruction of birds' nests, and the Duke of Buccleuch generalized the sentiments of the meeting by saying that, "As for the Game Laws, what was really required was a law for the general preservation of animals." We are entirely of his Grace's opinion in this matter, except only that we doubt whether the evil would admit or even require the remedy of direct legislation. It appears to us that the desired result would follow pretty surely upon the diffusion of sounder knowledge and the establishment of more enlightened opinions. As far as game preserving goes, a word from the landowners would be enough to put all keepers on a better track, and to teach them that they must not attempt to reject or supersede the provisions of nature. The same motive of self-interest may be expected in the

end to influence agriculturists generally. It must surely be sufficient for the purpose when it is proved, as it can be proved, that our system of exterminating certain animals for the presumed protection either of other animals or of the fruit of the earth actually defeats its own end. The better course, too, happens to be obviously the easier, for it consists simply in letting things alone. The British Association can do useful service in bringing the truth of the case plainly and intelligibly before the public, but when that has been done the good sense of the country may safely be relied upon for the rest.

The Game Laws are occupying considerable attention at present in Scotland, and as what is done in the North may have some influence on the South, we record the proceedings. There have been meetings held to discuss the subject at the Chamber of Agriculture in Edinburgh, Aberdeen, Perth, and other places. The main object seems to be to expunge hares and rabbits from the category of game. The two principal resolutions carried at Aberdeen were : first—"That hares and rabbits ought to be excluded from the operation of the Game Laws ; that their preservation, being incompatible with good farming, is contrary to the public good, and that therefore all contracts having for their object the preservation of hares and rabbits, ought to be declared illegal ;" the second—"That Justices of the Peace ought to have no jurisdiction in Game Law cases." In this view, being in the Commission

of the Peace ourselves, and having had very considerable experience in Game Law cases, we most heartily concur. The resolutions at the other places were, we may say, modifications of the preceding two, which may be taken as showing the tendency of opinion in the north.

The views of our popular Scottish proprietor, Lord Elcho, with reference to the Game Laws, are, we think, well worthy of attention. We do not, however, wish to be understood as endorsing his Lordship's opinion, that it would not be advisable to take away the jurisdiction of the justice in poaching cases, although we are ourselves on the Commission of the Peace :—

“ 1st. Then, as regards the poacher, I am opposed to all unnecessary adventures in the Game Laws, as well as in all other laws for the suppression of crime.

“ The limit of severity should be what is necessary for efficiency. I attach no sentimental feeling to a poacher, believing that few instances are to be found of labourers tempted by hunger or poverty to kill an occasional hare or pheasant. Poaching is, in fact, a regular trade, a recognized and popular branch of the criminal profession. And, although I can understand a man preferring the reckless life of a poacher, with its dangers and excitements, to the comparatively monotonous existence of an honest labourer or mechanic, I can see no reason why he should be treated differently from, or more leniently than, any other law-breaker. Many per-

sons indeed think that the diminution of poaching is to be sought, not in the relaxation of the law, but in its increased stringency, by putting game on the same footing as other descriptions of property. This was the course recommended by the *Times* newspaper, one of the chief organs of public opinion, in 1862, when the Game Law was under discussion in Parliament. The changes that were then made in the law, power having been given to the police to search suspected poachers, have, I am told, had the effect in many places of breaking up old-established gangs, and effectually checking poaching, with its attendant evils; and although men may differ as to the policy of having a Game Law at all, this result tends to show that so long as it exists, the diminution of crime is to be sought in the increased stringency, rather than in a relaxation of the law.

“ 2nd. As regards the farmer.

“ I fully admit that high farming and high game-preserving cannot go satisfactorily together, and that it is a grievous thing for an active and enterprising farmer to see his crops eaten and destroyed by game. Men so placed have my hearty sympathy. But where this evil exists, it is the result, not of the Game Laws, but of the terms of the leases and covenants voluntarily entered into by tenants with their landlords; and it must also be remembered that, where game is strictly preserved and abundant, rents are as a rule proportionately lower than they

otherwise would be. The remedy against the evil of excessive preservation, so far as the farmer is concerned, appears to me to be not so much in any alteration or modification of the Game Law, as of the covenants for the protection and killing of game that are made between tenant and landlord. The total abolition even of the Game Law would be insufficient as a protection to the farmer, unless accompanied by a provision that no clause or covenant in any lease or agreement shall be binding in law that reserves the right in game to the landlord. This is the only real practical conclusion to be drawn upon the subject. But the Chamber of Agriculture and Scottish Farmers' Club do not venture to propose so arbitrary an interference with the rights of property. They do not even petition in favour of the abolition of the Game Law, knowing the great commercial value in Scotland of what are called 'shootings,' and feeling doubtless the difficulty and injustice of withdrawing from this description of property such protection as it now by law enjoys. All that is now proposed are certain modifications of the existing law, which I shall now proceed to consider, necessarily influenced and guided by the views I have thus generally expressed.

"1. As to hares and rabbits.

"If the removal of hares and rabbits from the Game List is proposed with a view to the diminution of poaching, pheasants and grouse, which have a



higher market value, and hold out therefore stronger temptations to the poacher, should be equally excluded from the protection of the law. As regards the farmer, the removal of hares and rabbits would not necessarily benefit him, as a game-preserving landlord might and would still covenant with him for their protection and the sole right of killing them, as was done in the case of rabbits before they were made game. On the other hand, unless the law of trespass were made more summary and stringent, and this would of necessity result from or accompany a repeal of the Game Law, or such a change as is proposed, he would be liable to much annoyance and injury from trespassers in pursuit of hares and rabbits. The proposed change would not therefore give the farmer the relief hoped for, where his crops are injured by the preservation of these creatures. I believe the remedy, as I have already said, to be mainly in his own hands when he makes his agreement with his landlord. No change in the law can in this respect do as much for him as he can do for himself. A tenant, with the permission of his landlord, can now kill hares and rabbits on land in his own occupation without taking out a license.

“2. As to game prosecutions being competent only before a Sheriff.

“I am inclined to think that the law might, as suggested, be beneficially amended, and that when we have, as in Scotland, a resident local judge with

criminal jurisdiction, it might be well that all poaching cases should in some manner be brought before him. At the same time, I do not think it would be advisable wholly to take away the jurisdiction of the justices in poaching cases. In England, since the time of Sir R. Peel, the tendency of legislation has been to extend generally the jurisdiction of the justices, and there is no reason to suppose that justices in Scotland are less capable of properly administering justice than the same class of magistrates in England; neither is there any reason to suppose that the law in poaching cases is now partially or improperly administered; but it might be desirable, as a security against any possible abuse, that all cases of poaching should be tried by the justices in the presence of the Sheriff, who should act as assessor.

“3. As to the abolition of cumulative penalties, I have said that, as a general principle, the limit of severity should be that of efficiency. If it is thought by those responsible for the proper administration of the law, that its efficiency can be maintained without having recourse to cumulative penalties, I shall be happy to give my voice in favour of the proposed alteration, or of some more lenient application of the law. My own feeling is that cumulative penalties might be abolished.

“4. As to damages from increase of game during current leases being made exigible by statute.

“A farmer should, I hold, when entering upon a

lease, and when drawing up with his landlord the customary game covenants, guard himself against the risk of loss consequent upon its possible undue increase during his coming tenancy. If he does not do this, no one is to blame but himself. If he does it, and the covenant were to be infringed by the landlord or his heir, the law, I am told, as at present, would give him full redress. Such I believe to be his position in law. The Lord Advocate, at least, whom I have consulted upon the matter, is of opinion, and allows me to quote his opinion, that the proposed change in the law is unnecessary, and would not be desirable, as it might lead to litigation and bad feeling between landlord and tenant."

We find his lordship in his frank and lucid address on the hustings make the following corrections:—  
 "I said that hares and rabbits were on the same footing, but I find I was wrong, and, as there is much misunderstanding on this subject, it may be desirable that I should put before you the state of the law on the subject, which I have got in the shape of a legal opinion:—

"*Rabbits* are not game, and, by common law, a tenant may shoot or destroy rabbits in any way without consent of his landlord, or may give permission to any one to do so on his own farm.

"*Hares* are game, but, by the Statutes 11 and 12 Vict., cap. 30 (1848), a proprietor may give permission to any one to shoot hares on his (the pro-

prietor's) own land. It is not limited to tenants, as often supposed, but any one having the proprietor's permission may shoot hares on the proprietor's land without a licence.

“Of course, there may be any stipulations in leases under which the above rights of parties may be altered, and, as regards game certificates, these are required for any party shooting hares, or even rabbits, where the party does not come under the category before expressed. Thus, if the landlord reserves rabbits in the leases, and a party shoots them for amusement, drawing his right to do so from the landlord, not from the agricultural tenant, he would require a licence to shoot the rabbits; but it is only to this extent that rabbits are included in the Game Laws—that is, to the extent of making parties who shoot them for amusement take out licences. A tenant, therefore, can destroy rabbits himself, and give power to any one to do so, and it is only the luxury of the country that is made to pay for the amusement of shooting them.

“Hares, it will be seen, are so far in a different position that the permission must, in every case, flow from the proprietor. The right is in the proprietor, whether reserved in the lease or not, as they fall under ‘game,’ which is reserved to the proprietor at common law; and, although the tenant may get a permission for himself or some other party to kill hares, in which case no license

is required by such party, he (the tenant) cannot delegate the power."

The *South Eastern Gazette* gives us a new remedy for poaching, which must certainly recommend itself to the poachers more than to the country gentlemen. A man who was found poaching on the estate of Mr. Mackinnon, of Acrise Park, was taken to the house, deprived of his bag of game, and set down to a good meal. After eating his fill he was warned not to trespass again, and sent away. We hope the poacher's honour will be proof against all temptation to repeat the experiment. But we remember the story of the Roman Emperor who found an old soldier rubbing himself against a post because he had no money to buy a bath and slaves to rub him; and that when the Emperor took pity on him and gave him the money, at least fifty old soldiers were found rubbing themselves the next day on the same pretext.

We do not anticipate much from such proposals as are contained in Mr. McLagan's bill on the Game Laws. The question is one not for legislation, but for discretion and mutual consideration. On the one side there is a grievance much exaggerated; and on the other a right—nay, more than a right, a national taste. The grievance will be sufficiently met by a little moderation and the occasional exercise of tact on the part of game preservers. There is something surely wrong in allowing wild



and wasteful animals, such as hares and rabbits, to overrun and devastate a district possessing high cultivation, expensively manured, ploughed, harrowed, and harvested with costly machinery, studded with fine farm-buildings, and with the steam-engine rendering its multifarious assistance. All this for hares and rabbits ! Well, that is absurd ; and it is not the less so even if the farmer has ample compensation. But, on the other hand, what do people own land for in these days ? Certainly not for profit. They cannot get more than half the interest for their money that they would from first-class securities. They look for two returns, in fact—one, a very poor one, in money ; and another, in what may be called territorial privileges, such as the mere pleasure of a fair possession, influence, and amusement. Such are the great inducements to many capitalists to become landowners, to spend great sums on their land, and to reside with more or less advantage to the estate and the people on it. We sincerely hope that game will be preserved in this country, and that sport will be kept up. But cultivation will also be kept up and improved. The two things must be kept up together, and the only way to do it is to keep the wilder and more aggressive of the two within the limits suggested by common sense and mutual consideration.

Although the animals and birds that gave life to our woodlands in olden times are fast passing away, yet it is erroneous to suppose that sporting is on

the decrease. The best proof is the large increase of licenses to kill game. Thus, ten years ago rather less than 29,000 licenses were issued; last year the number was 43,231. Gamekeepers' licenses in the same years were respectively 1575 and 3217; and the licenses to deal in game were 1163 and 1838. Foxhunting, also, is undoubtedly on the increase. Not only do men now hunt by fifties, where formerly they did so by tens, but within comparatively recent periods packs of foxhounds have been established in places that knew them not before. Yet the boar and wolf disappeared two hundred years ago, the wild bull with his white mane is preserved only in two parks; the otter and the red deer linger on in the northern and western parts of the island; the badger and the snake are fast dying out under rustic ignorance and cruelty; the beaver has left the bare trace of its existence in such names as Beverley and Beverege; the fen eagles have abandoned the marshes, and the bustards are no longer coursed on the Norfolk downs; the bittern and crane have vanished; the quail is nearly extinct in the face of advancing civilization.

The Earl of Kellie has addressed a letter in the following terms to each of the tenant-farmers on his estates:—

Sir,—I do not think that the law regarding the rights of tenant-farmers to kill rabbits on their farms is rightly understood here, and I therefore wish to explain what I believe it to be, and also

what concessions I am willing to make to my tenants as to killing hares.

1. Tenant-farmers, if not restrained by their leases, are, "*for the preservation of their crops*" only, entitled by law to kill rabbits on the lands let to them; and I am not aware that the late Earl of Mar and Kellie, except in his park and policy ground, ever sought to prevent them from doing so. Neither do I wish to restrain you from exercising any of your legal rights.

2. The law does not authorize a tenant to delegate his right to destroy rabbits to other persons than his actual servants, and the law prohibits the use of any kind of poison for the destruction of game or rabbits, as well as the carrying of fire-arms by *night*—*i.e.*, from one hour after sunset to one hour before sunrise.

3. My gamekeepers and such persons as I may authorize will continue to kill rabbits, and do their best to keep them down, and I will be glad if you will send your servants to assist them; but if you or your servants find any rabbits or hares that have been trapped, caught, or shot by my gamekeepers, you will, of course, not take possession of them, unless to give them to the keeper.

4. The law does not authorize a tenant-farmer, or his servant, going into plantations or covers, or into lands not let to him, either to destroy rabbits or in pursuit of them, and of course you will not do so.

5. You are aware that as the whole of the *game*, which includes hares, has by your lease been reserved to the landlord, you cannot, without my permission, destroy hares; but when you find that the hares on your farm are really numerous and destructive, and you wish to shoot a few of them, I will not object to your doing so between the 1st of December and the 31st of January, provided you do so when I, or any of my sons or gamekeepers, happen to be on the ground; and on your expressing your wish to shoot to me, or to the gamekeeper of your district, you will generally find some one ready to accompany you; and the law allows farmers, *with the consent* of their landlord, to shoot hares without paying for a license. I will also endeavour to keep down the hares.

6. Having conceded so much, I trust you will afford my keepers every assistance in preserving feathered game, and a moderate number of hares.

7. The law makes it penal for anyone to take up or destroy game-birds' eggs (as well as game without a license and permission of the landlord), and I therefore hope you will not allow your servants to clean out ditches or cut hedges during the breeding season, and caution them when cutting grass, hay, &c., not to injure birds or eggs; and I shall be glad if, when killing rabbits in the breeding season, you will prohibit the discharge of fire-arms.—I am, Sir, your obedient servant,

KELLIE.

The examples recently afforded by most of the United States, by British America, and by our own Australian colonies, in passing laws for the protection of game and fish, must, if carefully examined, convince all unprejudiced persons that, without their aid, it is impossible to prevent the extermination of these animals. The Game Laws in the State of New York are quite as stringent as our own, and in some respects more so. For instance, in this country game cannot be searched for when once it has entered a private dwelling-house; but in New York any district court judge, justice of the peace, police or other magistrate, may, upon proof of probable cause to believe in the concealment of any game or fish mentioned in the Act, during any of the prohibited periods, issue his search warrant and cause search to be made in any house, market, boat, car, or other building, and for that end may cause any apartment, chest, box, locker or crate to be broken open, and the contents examined.

What would Mr. Bright say to such an invasion of "the Englishman's castle" as this? Probably he would not object to such a clause being inserted in the salmon laws; but game bears a totally different character in his eyes, and what is sauce for the salmon is not supposed by him to be suited to the partridge or pheasant. Until game is made property, we have no particular desire to extend the right of search for it beyond its present limits;



and we have only inserted the above clause from the last Act passed in the State of New York on the 13th of May, 1867, as an example of the extent to which the people of that State are ready to surrender their privileges in order to preserve the game which is still left to them.

A case of considerable importance has just been decided in the Court of Session—*Morton v. Graham*. An agricultural lease contained a reservation of game and rabbits to the landlord, “without his being liable to compensate the tenant in respect of the reservation and liberty herein expressed.” The game and rabbits were let separately; and the agricultural tenant brought an action of damages, on the ground that the landlord had allowed the game and rabbits to increase to an amount exceeding a fair average stock. The importance of the case consists in the recognition of the principle that, even in the face of so strong a reservation clause as that quoted, a tenant may have a claim for reparation where game or rabbit stock is unduly increased. In this case, the Court held that such increase had not been proved; but possibly a different result may take place if the next action of the kind is tried by a jury. The evidence in the present case was taken by the Lord Ordinary under a remit from the Inner House, in terms of the recent Evidence Act.

It is idle to suppose that, with the present and increasing demand, game can be banished from the

farmer's crops; for, notwithstanding the enormous supplies poured into the market from our own islands, a very large and increasing importation of game now exists. The following little table gives the declared value of the game and poultry imported in the years 1865 and 1866, and from what countries (the declared value of these was about £131,000 in 1864):—

	1865.	1866.
Norway . . . . .	£2,056 .....	£1,642
Holland . . . . .	9993 .....	16,815
Belgium . . . . .	70,653 .....	97,082
France . . . . .	64,532 .....	56,210
Other countries . . .	1408 .....	3222
	<hr/> £148,642	<hr/> £174,971

Norway chiefly sends us white hares and ptarmigan; Belgium, Ostend rabbits and other game; France, poultry.

We should be very sorry indeed to see the Game Laws abolished, or even made less stringent. Any further step in that direction would increase the already numerous bands of villainous poachers, who fill our prisons in town and country. If we look to the other side of the water we find the French making strong appeals in the Paris newspapers, calling upon licensed sportsmen to combine together and procure the enactment of more stringent Game Laws. This combination is urged on the ground that the poacher not only interferes with the

recreation of the privileged sportsman, but picks his pocket as well. Young partridges, which in days before railways were general, used to fetch only half a franc each, now realize two francs and a half; and hares, that used to be commonly sold for a couple of francs, now bring 'at the sales of game by auction at La Vallée, the Paris game market, as much as eight and nine francs each. One result of this great increase in the value of game at Paris is, that the annual right of shooting over certain farms in the department of the Seine and Marne, which are leased to tenants at 6,000 francs a year, is disposed of by the proprietor for no less than 10,000 francs.

Societies for the protection of game are common throughout France, and the central one, in the department of the Seine, is presided over by the Marquis de Nicolai, the terror of the poaching fraternity. These societies give rewards, varying in amount from fifty to a hundred francs, for the detection and conviction of poachers; still they are found inadequate to cope with the evil, and hence the agitation now on foot. One proposition is that the stock of all dealers in game at the markets of the villages and small country towns throughout France should be regularly inspected, and the onus laid upon the dealer to prove that he had made his purchases from persons privileged to sell. Another, that all game sent to the various railway stations for transmission should be overhauled, and

proof furnished by the sender that he had acquired it legitimately. A third, that all “restaurateurs” dealing in game out of season should be severely punished. A fourth, that the rural guards should be armed with revolvers, and provided with “mastiffs of English breed *with acute noses for ferreting out poachers*; these dogs to be previously trained to the attack by exercising them upon puppets dressed up in dark coloured clothes, such as night poachers commonly wear, and in which they might find *une sanglante nourriture*,” as the document expresses it. Such are the demands of the larger landed proprietors in the empire of France.

Our landed proprietors might do well to have similar propositions passed into law in this country. The fourth proposal, as to using mastiffs, would perhaps run rather counter to English notions, although we certainly cannot but regard the poacher as an actual criminal, just as much as if he entered our grazing enclosures and shot a fatted ox, and thievishly departed with the carcass. We have already said that if the game is the property of anyone, it is that of the proprietor of the estate it is upon. He is, therefore, surely entitled to protect it as he would protect a herd of cattle, a flock of sheep, or a roost of poultry, against thieves.

Some farmers consider that they suffer great injustice, not only because of the Game Laws, but in consequence of fox-hunting. That, whilst hunting wild animals where forest and waste abound is

in no way objectionable, it is unfitted for a country densely populated, enclosed, and cultivated. We cannot concur in these views. Fox-hunting has its many advantages for the farmer, and so, too, has hare-hunting. The love of hunting is very strong in the breasts of Englishmen, and it is a powerful inducement for landlords to live on their estates, and make themselves acquainted with the tenants. Moreover, many a well-to-do farmer heartily welcomes

“The shrill horn

Resounding from the hills ; the neighing steed,  
Wild for the chase ; and the loud hunter’s shout.”

In our best hunting counties, farmers are not so generally opposed to hunting. We have over and over again seen farmers of the locality join us in the sport with much enthusiasm, and do infinitely more damage than gentlemen, who were more regardful. As a rule, the man who takes the lead after foxhounds will, ten to one, take the lead in any other position. Where there is fox-hunting there is usually a good market for corn and horses, and much of wealth and fashion come together and spend a deal of money. We have not the shadow of a doubt that all the evil complained of by a few churlish farmers of fox-hunting—such as breaking fences, throwing down hurdles, sheep nets, &c., is more than compensated by the sports of the field to the majority of the old and young of the country. Mr. Trotter, a tenant farmer, stated the other day



that he had been at South Acomb for twenty years, and that probably there was not a farm in the district more hunted over than his, yet he did not think he had sustained £5 damage.

Fox-hunting is truly the great national sport; it is part and parcel of the British constitution, and sincerely do we hope that "Tally ho!" may for ever be heard in the land. It is certain that fox-hunting and the over-preservation of hares and rabbits cannot go on together. Where the latter are unduly protected, and stimulated by every possible means to increase and multiply, foxes disappear. So well is this known to be the case, that masters of hounds have ceased to hunt in certain districts, simply because it is a mere waste of time to attempt drawing the covers, owing to the total destruction of foxes caused by the attention exclusively paid to the multiplication of hares and rabbits. Let us see what Mr. Corbet says on this point in the paper on "The Over-preservation of Game," which he read nearly eight years ago before the members of the Central Farmers' Club:—

"I have termed the keeper an enemy to true sport—to the finest field sport this or any country can boast of. How often have I seen pheasants darken the air, and hares and rabbits cross the steady hounds at every step, as we drew the large holding covers one after another without a challenge or the sign of a fox. How I have marked the master and huntsman look significantly at each

other when every bit of it was drawn "*blank*," and heard the latter call his hounds away from the swarms of vermin with a certain kind of contempt in the tone of his cheery voice—"Come away, my lads, come away! we don't want 'em, do we?" And then, as some much bewildered bunny runs right into the jaws of death and Dominic—and even Dominic looks as if he should like to have the marks of his teeth in her fat back, if it be merely that he might know her again—one half word of a caution stays him. 'Have a care, old man; don't spoil the fine folks' sport for them!' and Dominic frees himself wearily of the thick lying, for he begins to see it is all a mere matter of form, and comes self-satisfied up to the good horse's heel. There, too, at the other end of the cover, was sure to stand the jealous, guilty, murdering keeper, reiterating that he 'Can't make it out. There were three or four foxes here the day before yesterday; my lord will be sorry to hear they didn't find;' and so on. 'Come away, *Cope!*' is the other's only comment, as he draws his hounds by with a half smile of pity that makes Mr. Plush, case-hardened as he is, fairly wince again. There is no greater self-deception, no finer piece of humbug, than a game-preserve allowing his keeper to sell the rabbits, and telling him, at the same time, not to destroy the foxes."

We rejoice to see the great interest His Royal Highness the Prince of Wales, and the charming

Princess, take in this noble sport. Their courtesy and kindness have won golden opinions on all hands, and if it be possible to enhance their popularity, their patronage of the chase will tend to do it. His Royal Highness not only hunts with the West Norfolk, but also welcomes the members of the Hunt to Sandringham, dispensing in the most liberal manner the good things of this life. One of these brilliant meets on the lawn in front of Sandringham House took place on the 15th of January last, favoured with brilliant weather.

“Joyous the crimson morning rose,  
 As from the week’s repose  
 Sprung the light heart.  
 We come, ye groves, ye hills, we come;  
 The cunning fox shall hear his doom,  
 And dread our jovial train.”

For some time before the hour fixed for the start all the roads on the royal estate were thronged with equestrians of both sexes, and carriages of every description. A large number of ladies were present, and the scene on the lawn from eleven to twelve o’clock was extremely gay. The splendid pack of hounds occupied the foreground, whilst the extensive space in the rear was filled by members of the Hunt and carriage company, and a very hearty and welcome hospitality was meted out to all comers, a capital breakfast being provided. The Prince of Wales was mounted on one of his splendid hunters, and the Princess drove her exquisite greys

in her elegant wagonette. Long may the Prince of Wales, the worthy son of a worthy father, live to animate this, the noblest of sport, with the young and amiable Princess of Wales, who has won for herself the love and lasting respect of all classes of the English nation. What Englishman is there whose heart does not warm at the mention of Royal Edward's name, at the sight of the Royal Lady, born of a long line of kings and heiress of their virtues, the loved and loving wife of the son of "Albert the Good!" God bless them both, and may they live long and be truly happy. Of the Princess it may sincerely be hoped that—

"Her kindness shall bring to her many sweet hours,  
 And blessings her pathway to crown;  
 Affection shall weave her a garland of flowers,  
 More precious than wealth or renown."

It is most pleasing to record instances of public acknowledgment to the distinguished aristocracy of the country for their liberality in affording sport to the people. Earl Fitzwilliam has just had a very gratifying proof of how his lordship's neighbours appreciate his liberality and kindness as a master of hounds, by presenting him with a magnificent hunting horn. A deputation of the subscribers having waited upon the noble Earl and having explained the object of their visit, his lordship said, he was very glad indeed to accept from the gentlemen of Sheffield that token of their good will. The people of Sheffield knew that he was

much attached to fox-hunting. He began when a very little boy, in his grandfather's days; and while hunting came to be less cared for by most people as they got into years, yet with him the love of the sport grew with his years. He loved fox-hunting, not for the sport alone, but because it brought into the field all classes, from the highest to the lowest, and tended to create and foster a spirit of goodwill and friendliness amongst them. In some counties, horsemen only could join in the sport; but he was thankful that he was often enabled to show his poorer neighbours, the footmen, as good sport as the best-mounted horsemen. Of course, when there was a very large field, it sometimes happened that the temper of a huntsman was severely tried; but he was glad to say that his "field" was as well-behaved as any in the country. He trusted the subscribers would accept his thanks for their beautiful present. It was too costly and elegant for everyday use; but for that day, and he hoped occasionally for many years to come, they should hear him call them with it to many a good day's sport.

These are the sentiments of a genuine sportsman, and most heartily do we wish that the noble Earl may long report his covers full of foxes, in furtherance of sport for himself and his many friends.

"When the morn stands on tiptoe, 'twixt mountain and sky,

How pleasant to follow the hounds in full cry;



When the bright-spangled dewdrops the meadows  
adorn,  
How delightful to follow the hounds and the  
horn."

The mouthpiece and the bell of the horn were of solid gold, and it was richly engraved. It bore the following inscription: "Presented to the Right Hon. the Earl Fitzwilliam, K.G., by a few Sheffield gentlemen, in grateful appreciation of his Lordship's liberality and kindness as Master of Hounds." On the other side were engraved the earl's crests, encircled by the Order of the Garter and surmounted by a coronet.

Considering the marvellous rise of shooting-rents, the preservation of game by the proprietary of the country is not much to be wondered at. England gives many examples; but, as Scotland affords the most notable instances, we condense the following interesting account, which appears in a late number of the *Quarterly Review*. The writer states that in the counties of Perth, Inverness, and Ross, Highland properties have doubled in value within the last forty years. That the shootings of Glen-Urquhart were, in 1836, let for £100; they now produce a rental of about £2000. The Glenmoriston ground was rented for £100 in 1835; the moors now bring in to the proprietor between two and three thousand a-year. The shootings attached to Erchless Castle, as well as those of Fas-

nakyle, may be taken as fair examples of the rise of shooting-rents. These have increased at least twenty times in value in the course of the last twenty years. One of the first shootings let was Monalia or Coignafearn, on which moors the River Findhorn has its source. They are the property of The Mackintosh, and were first let to a Mr. Windsor, at a rent of £30, with £5 given back as a luckpenny. Some fifteen years ago these shootings were let at variable rents, from three to five hundred pounds. The Aberarder moors were on lease some thirty years ago at £70; the rent has been for years back on an average £400. Stratherrick for years let without a house at £70, now let on a long lease at £600, with a house. These facts may be taken as a sample of the effects resulting from the growing taste for Highland life and Highland sports. A glance at Mr. Snowie's first list of shooting quarters to be let this year will give some idea of the scale of prices demanded for shooting ground. We find there Upper Killin (17,000 acres) advertised at £500; Glenquoich, £1700; the Macdonald estates in Skye, an aggregate of £1250; Auchonachie and Cabaan, £700; Kinlochluichart, £2000; Kinlochewe, £1200; Upper Strathmore and other ranges belonging to the same proprietor, £1047; and in another list published by the same authority, we count more than 200 names of northern shooting quarters actually in occupation. It is to be remembered that these consist only of such as have come

under the immediate notice or agency of Mr. Snowie himself. Forty years ago the very names of the greater part of these places were unheard of beyond their own immediate neighbourhood, and the game made no return whatever to a proprietor of the land. The rents have gone on steadily increasing. Mr. Snowie, of Inverness, whose name is so well known in connection with Highland shootings, has been in the habit for years of publishing an advertisement-sheet of places to be let. His first list was printed in 1836. It contains only eight advertisements; since then the demand for moors has increased so steadily that for nearly twenty years he has printed three, sometimes four lists every year, and circulated them to the extent of 1500 copies yearly.

We give the following as an instance of the value of a sporting estate. In December last there was submitted to public competition the Brookfield Estate, near Hathersage. This property has, from the fine shooting afforded by it, been looked on with much favour. It consists of about 1000 acres of moor land, comprising the well-known grouse moors of White Path Moss and about 400 acres of agricultural land, as at present let, producing about £440 per year, exclusive of house and woodland in hand. The first bid was £10,000, then the bids went up to £15,100, £20,000, £25,000, £30,000. After the bidding had passed £30,000, two competitors alone remained, and the advances were

made in sums from £100 to £400 by Mr. Johnson, solicitor, of Sheffield, and Mr. Young, from Leeds, and were terminated by Mr. Young's bid, on behalf of Charles Cammell, Esq., of Norton Hall, of £44,100, and with the timber valuation, £5650, gives a total of £49,750.

From "Leaves from the Journal of our Life in the Highlands," the most interesting Diary of the Queen, we learn how her Majesty and the justly lamented Prince Consort loved Scottish sports in her own happy style, which lends a charm to the book, which is most appropriately dedicated "To the dear memory of him who made the life of the writer bright and happy, these simple records are lovingly and gratefully inscribed."

"Thursday, Sept. 19.—Albert set off, immediately after luncheon, deer-stalking, and I was to follow and wait below in order to see the deer driven down. At four o'clock I set off with Lady Glenlyon and Lady Canning, Mr. Oswald and Lord Charles Wellesley riding by the lower Glen Tilt drive. We stopped at the end; but were still in the wood; Sandy was looking out and watching. After waiting we were allowed to come out of the carriage, and came upon the road, where we saw some deer on the brow of the hill. We sat down on the ground, Lady Canning and I sketching, and Sandy and Mr. Oswald, both in Highland costume (the same that they all wear here, viz., a grey cloth jacket and waistcoat, with a kilt and Highland

bonnet), laying on the grass and looking through glasses. After waiting again some time, we were told in a mysterious whisper that 'they were coming,' and indeed a great herd did appear on the brow of the hill, and came running down a good way, when most provokingly two men who were walking on the road—which they had no business to have done—suddenly came in sight, and then the herd all ran back again, and the sport was spoilt. After waiting some little while we observed Albert, Lord Glenlyon, and the keepers on the brow of the hill, and we got into the carriage, drove a little way, went over the bridge, where there is a shepherd's 'shiel,' and got out and waited for them to join us, which they did almost immediately—looking very picturesque with their rifles. My poor Albert had not even fired one shot for fear of spoiling the whole thing, but had been running about a good deal. The group of keepers and dogs was very pretty. After talking and waiting a little while, we walked some way on, and then Albert drove home with us. More unsuccessful sport.

"Saturday, Sept 21.—After breakfast Albert saw Lord Glenlyon, who proposed that he should go out deer-stalking, and that I should follow him. At twenty minutes to eleven we drove off with Lady Canning for Glen Tilt. The day was glorious, and it would have been a pity to lose it, but it was a long hard day's work, though extremely delightful and enjoyable, and unlike anything I had ever done before."



I should have enjoyed it still more had I been able to be with Albert the whole time. . . . At length Albert met us, and told me he had waited all the time for us, as he knew how anxious I should be. He had been very unlucky, and had lost his sport, for the rifle would not go off just when he could have shot some fine harts; yet he was as merry and cheerful as if nothing had happened to disappoint him. We got down quite safely to the bridge; our ponies going most surely, though it was quite dusk when we were at the bottom of the hill. We walked to the Marble Lodge, and then got into the pony carriage and drove home by very bright moonlight, which made every thing look very lovely; but the road made one a little nervous. We saw a flight of ptarmigan with their white wings on the top of Sron a Chro, also plovers, grouse, and pheasants. We were safely home by a quarter to eight.

“After luncheon Albert decided to walk through the wood for the last time, to have a last chance, and allow Vicky and me to go with him. At half-past three we started, got out at Grant’s, and walked up part of Carrop, intending to go on the lower path, when a stag was heard to roar, and we all turned into the wood. We crept along, and got into the middle path. Albert soon left us to go lower, and we sat down to wait for him; presently we heard a shot—then complete silence—and after another pause of some little time, three more shots. This was again succeeded by complete silence. We

sent some one to look, who shortly after returned, saying the stag had been twice hit, and they were after him. Macdonald next went, and in about five minutes we heard 'Soloman' give tongue, and knew he had the stag at bay. We listened a little while, and then began moving down, hoping to arrive in time; but the barking had ceased, and Albert had already killed the stag; and on the road he lay, a little way beyond Invergelder—the beauty that we had admired yesterday evening. He was a magnificent animal, and I sat down and scratched a little sketch of him on a bit of paper that Macdonald had in his pocket, which I put on a stone, while Albert and Vicky, with the others, built a little cairn to mark the spot. We heard, after I had finished my little scrawl and the carriage had joined us, that another stag had been seen near the road; and we had not gone as far as the Irons before we saw one below the road, looking so handsome. Albert jumped out and fired; the animal fell, but rose again, and went on a little way, and Albert followed. Very shortly after, however, we heard a cry, and ran down and found Grant and Donald Stewart pulling up a stag with a very pretty head. Albert had gone on, Grant went after him, and I and Vicky remained with Donald Stewart, the stag, and the dogs. I sat down to sketch, and poor Vicky unfortunately seated herself on a wasps' nest, and was much stung. Donald Stewart rescued her, for I could not, being too much

alarmed. Albert joined us in twenty minutes, unconscious of having killed the stag. What a delightful day! But sad that it should be the last day! Home by half-past six. We found our beautiful stag had arrived, and admired him much."

The Queen's book is altogether exceptionally interesting. It rouses a deep heart-felt sympathy and affection for our royal house. It breathes genial kindness—the life of a good woman, a happy wife, and a tender mother. Hard indeed must be the heart that can muse over its sweet pages without moistening them with a tear!

In this, as in all marketable commodities, the prices are regulated by the law of demand and supply. It is the Englishman himself, say a correspondent of the *Quarterly Review*, that has raised the rent of shootings; and as long as there exists a class of rich men who, doomed to the desk or sedentary occupation for three-fourths of a year, find mountain air and exercise for the remaining three months necessary to enable them to continue their labours, and who, many of them—I do not say all—are careless of the sport they get, and are probably very indifferent sportsmen, but to whom the walk on the hill is new life—so long, I say, as this class of men exists, so long will the rentals of shootings rise, and the Highland proprietor be perfectly justified in making the best of his market. Moreover, it is not merely the proprietors who have

been enriched by the invasion of the southern sportsmen. The tenant must and does spend at least another rent, often much more, in the district. The expenses of his household are great, and his supplies of the ordinary necessities of life are obtained usually at the farms on the ground, or from the nearest market-town or village. The employment he affords to so many about him as keepers, watchers, gillies, and the numerous hangers-on of a shooting establishment, is a great boon to the neighbourhood. The shooting-lodge, in all likelihood erected at his own or at a former tenant's expense, with all its accessories of stables, kennels, &c., must be kept in repair. The private roads, bringing the lodge into communication with the highway, must be maintained in travelable order. In short, there is, perhaps, hardly a farmer, a tradesman, an artificer, or a labouring man in the district, who does not find his profit in the residence of the stranger in the country. It is seldom, too, that the poor cotters on the moor—the aged, the infirm, and the sick—do not owe something to the bounty of their rich neighbour. We could cite instances of the most extensive benevolence being exercised, not by the mere money gift, but by the timely administration of good diet to the invalid, the procuring of medical aid from a distance, and, better than all, by the kindly visit and the cheering word of comfort to the sufferer.

Agents generally insert attractive advertisements

in the newspapers when they have shootings to let. They are not to be blamed for this when the game is abundant; but little can be said on behalf of the morality of the proceeding when the game is scarce. It is no apology for an Agent to say that he received his information from the keeper; he is bound, in justice to his employer, to have satisfied himself. True, there are some landowners, though we are happy to say very few, who delight in catching dupes, not only by alluring and specious advertisements, but by employing "game-copers" to do their dirty work of deception. In the progressive age in which we live, but we fear progressive rather in astuteness than in morality, circumspection in all matters in which investments are to be made, seems to be imperatively required. It would be amusing, were it not really fraudulent, to observe that comparatively grouseless moors are offered to the public, on the condition that the number of grouse to be killed will be limited. This is, we are sorry to say, an old and stale device. The number is usually put at several hundred brace more than are to be found on the ground. The object, of course, is to induce a belief in the minds of sportsmen that there must be, at least, as many as the number named as the limit. We have known moors where 1000 brace was the limit, where barely 400 were to be seen on the ground. What conduct can be more reprehensible? Factors who lend themselves to this sort of delusion, not only bring disgrace upon themselves,



but upon the owners of the land. Moreover, such conduct is calculated to depreciate rather than enhance the value of sporting grounds. There are few things more annoying to gentlemen than to start from their shooting boxes, to roam over wild mountains and solitary glens in quest of the heath-frequenting brood, to return wearied and disappointed.

How different the sporting in the olden time, when the neighbouring lairds were wont to meet in remote glens to enjoy each other's society for the season, and to decide bets of rumps and dozens, to be discussed when days got short, and nights got long! In my native county, Ross-shire, proprietors and their friends annually occupied shootings, and particularly those of Keanloch Ewe, Achnashean, Strathvaich, Leadgoun, Inchbea, Achnacluach, and Faserinach, dispensing hospitality extensively in their bothies of a but and a ben, with the addition of a sweet-scented hay barn, that knew neither lock nor key! In the latter place, under the black rafters which have long since gone to ashes, the varied produce of Ben Derg and Ben Cailich, and of the black linn of the romantic Broom, was annually enjoyed by large parties, who luxuriated amidst the sweet intercourse of friendship unrestrained; and in autumn Loch Broom is truly beautiful. For a time there was a lull in deer-stalking, but grouse shooting in perfection prevailed; and it is now near fifty years since a very interesting

bet was decided in Strathvaich, betwixt the late Sir Francis Mackenzie of Gairloch, and Mr. George Mackenzie of Allangrange, two crack shots of uncommon pluck, and though they only took the hill after a very late breakfast, the former killed sixty-nine and the latter seventy-three brace of birds, showing the abundance of game in these days. The loss of the bet was a gain to a party of at least a dozen, who met at the good old town of Dingwall, to celebrate the event. Such meetings, so unselfish in character, when friend vied with friend in promoting manly sport and social virtue, are not now, alas ! the order of the day. To many Highland patriarchs the very thought of having outlived the chivalrous, convivial men of those days, who so generously met to perpetuate friendship, makes life “a moral desert and a blank.” The *disease* is almost as mysterious as the potato blight, and nothing that has yet been written about it has satisfied us of its extent, or of the causes which led to the rapid disappearance of birds from the best stocked moors ; and though disease is known to have been rife, we are of opinion that the passion for *inordinately large bags* which has been indulged in on moors not let under lease, and the unceasing demand for the southern market, has led chiefly to the scarcity. No stranger has the same interest in preserving game as the *owners*, who have a love for sport ; but we regret to say that these have become few in number, and that in exploring the fastnesses

of the Highlands is all but relinquished by our own country gentlemen. The paucity may also be ascribed to the increasing number of the fox, and to not burning the overgrown portions of the heath each successive year; for when the heath becomes rank, the young birds are caged in—are unable to move away for food—and are frequently found dead in their nests. It is worthy of remark, too, that the disease has hitherto been periodical in its visits. It appeared in 1809, 1824, 1835, 1847, 1856, and 1865, and it invariably began on the moors further south and travelled northwards, county after county. If we are ever to have grouse shooting in perfection again, we must give a jubilee to the heath-frequenting broods; nothing short of this will suffice. Whilst in the bygone season there has been a great deficiency in birds, deer-stalking was all that could be wished. Herds have thriven well, and all the northern forests are well stocked. For those who love lone glades and trackless mountains, there is truly no class of sport so exhilarating as deer-stalking in the high mountain corries. How happily the chief of Scottish song expressed the joyous thought—

“ My heart’s in the Highlands, my heart is not here;  
 My heart’s in the Highlands a chasing the deer;  
 Chasing the wild deer, and following the roe,  
 My heart’s in the Highlands wherever I go.”

We rejoice to learn by the Queen’s Journal,

that she too regards the Highlands and the Highlanders with peculiar affection, and she adopts as her own the words of the poet who has done most to make Scotland famous :—

“ Land of brown heath and shaggy wood,  
Land of the mountain and the flood,  
Land of my sires ! what mortal hand  
Can e’er untie the filial band  
That knits me to thy rugged strand ?  
Still, as I view each well-known scene,  
Think what is now, and what hath been,  
Seems as, to me, of all bereft,  
Sole friends thy woods and streams are left ;  
And thus I love them better still,  
Even in extremity of ill.”

It may be here observed, what Englishmen do not usually consider, that in Scotland there are two distinct races—on the one hand the Southron, the Lowlander, the Sassenach ; on the other, the men of the North, the Highlanders, chiefly Celtic and Norse. Between these two classes there is much antagonism of feeling. The Highlander, however poor he may be, is inclined to look down on the Lowland Scots as lowborn, and to esteem himself as essentially a “shentleman.” He has his infirmities, but he is almost always manly, courageous, and courteous, without any shadow of cringing ; he is of strong build, with a natural grace of carriage. The Queen was delighted with these people, and

chose from among them her most trusted attendants. She says, in one part of her journal,—“All the Highlanders are so amusing, and really pleasant and instructive to talk to—women as well as men—and the latter so gentlemanlike.” In another passage she observes,—“We were always in the habit of conversing with the Highlanders, with whom one comes so much in contact in the Highlands. The Prince highly appreciated the good-breeding, simplicity, and intelligence which make it so pleasant and even instructive to talk to them.” From among these men we have said that she chose some of her most trusted servants.

With reference to deer-stalking, the Queen records in her beautiful and simple words :—“We scrambled up an almost perpendicular place to where there was a little box, made of hurdles and interwoven with branches of fir and heather, about five feet in height. There we seated ourselves with Bertie, Macdonald lying in the heather near us, watching and quite concealed; some had gone round to beat, and others again were at a little distance. We sat quite still, and sketched a little; I doing the landscape and some trees, Albert drawing Macdonald as he lay there. This lasted for nearly an hour, when Albert fancied he heard a distant sound, and, in a few minutes, Macdonald whispered that he saw stags, and that Albert should wait and take a steady aim. We then heard them coming past. Albert did not look over the box, but through it, and fired through



the branches, and then again over the box. The deer retreated ; but Albert felt certain he had hit a stag. He ran up to the keepers, and at that moment they called from below that they ‘ had got him,’ and Albert ran on to see. I waited for a bit ; but soon scrambled on with Bertie and Macdonald’s help ; and Albert joined me directly, and we all went down and saw a magnificent stag, ‘ a royal,’ which had dropped, soon after Albert had hit him, at one of the men’s feet. The sport was successful, and everyone was delighted,—Macdonald and the keepers in particular ;—the former saying, ‘ that it was her Majesty’s coming out that had brought the good luck.’ I was supposed to have ‘ a lucky foot,’ of which the Highlanders ‘ think a great deal.’ We walked down to the place we last came up, got into the carriage, and were home by half-past two o’clock.”

This man whose poetic genius has never been surpassed, was deeply impressed with the awe-inspiring solitudes—the savage desolation, so powerfully depicted as the “ strength of the hills” of his native land, and composed some of his noblest lyrics when under the influence of scenic impressions, during his solitary rides in the district of which we are writing. At that period of his chequered career, when he followed the profession of a “ gauger,” he is said to have composed one of the most heart-stirring of all his ballads, “ Scots wha hae,” during exposure to a fierce storm of lightning, thunder, and rain, in the wild district of the Glenkens.

“ Land of the bleak, the treeless muir—  
The sterile mountain, sered and riven ;  
The shapeless cairn, the ruined tower,  
Scathed by the bolts of Heaven—

\* \* \* \* \*

I love thee still, thou ancient land !”

That the habitual contemplation of mountain scenery exercises considerable effect on the imagination can scarcely be doubted ; and we may travel back from the days of Burns to the times of the ancient bards and minstrels, several of the most illustrious of whom drew their lofty aspirations from this source. It has been finely remarked that the seat of the Celtic muse is in the mist of the secret and solitary hill, and her voice in the murmur of the mountain stream. He who woos her must love the barren rock more than the fertile valley, and the solitude of the desert better than the festivity of the hall.

We find our views with reference to the cause of the grouse disease, confirmed in “ Land and Water,” which submits the following facts to the judgment of sportsmen :—There are two moors, one in Inverness-shire, one in Aberdeenshire ; the distance between the two as the crow flies is probably not more than forty miles. The first-named moor contains forty thousand acres, the second thirty thousand. On the first there has been no disease, and more than two thousand brace of grouse, in the best possible condition, have been killed this season, and

a large stock of healthy birds have been left to breed; on the second moor, although in ordinary years between two and three thousand brace of grouse have been killed, this season not one bird has yet been shot, because the disease has prevailed to such an extent that few grouse are left. What has been the reason of these different results? is the important question to be solved; and in what respect does one moor differ from another? and was the weather similar in the spring of the year? or was it in any important respect different? and if so, what effect did that difference produce on the heather? On the moor on which the disease has prevailed, the keeper states that the last spring was one of the very worst he has ever known since he has been on the ground, and his experience extends over seventeen years, in addition to about ten years' prior experience on other moors. There were continuous cold, sharp, cutting easterly winds, with occasional sleet and snow storms, and the heather became hard and sapless, this having been the invariable consequence of similar weather since he has been on the ground. He, therefore, infers that hard, indigestible, sapless heather has been to a great extent the occasion of the disease, especially as, in *every* instance on opening a diseased bird, he has found the liver black and soft. One striking difference between the disease of 1867 and that of former years he states to have been, that the dead birds he has picked up this season were so plump, and in such excellent

plumage, that they had the appearance of healthy birds ; whereas in former years the diseased birds were mostly characterised by dull, disordered plumage and attenuated bodies. The keeper on the diseased moor we have known for seventeen years, and we have perfect reliance on the accuracy of his statements as well as on the soundness of his judgment, as he is a very intelligent man. The information which we have received from the healthy moors is from a brother sportsman whom we have known for years ; he tells us that on inquiry he has ascertained from his keepers that the heather throughout the whole of last winter and spring had never been bad, that although the weather was severe in the spring, the greater part of the ground was covered with snow, which, on disappearing under the influence of more genial weather, left the heather in excellent condition.

Having entered fully into the “bird” question in our “Hints on Farming,” we shall here simply give one or two communications on the subject from “Land and Water.” Agents should be very jealous of upsetting the laws of Nature. God created everything with ample balancing influences. If birds are too numerous, the elements destroy them. Dr. Millar, of Bethnal House, Bethnal Green, writes :—Good evidence of the severity of the rain during Thursday night (July 25th, 1867) has been afforded here, in the destruction of nearly all the sparrows which congregate in our trees. His under-gardener picked

up one hundred and twenty-four on the following morning, and in sweeping up the fallen leaves the dead birds were found in considerable numbers. It was estimated that more than two hundred were thus killed.

We are glad to see that the cause of the small birds is pleaded by so eloquent an advocate as Mr. Groom-Napier in your columns, as that of the sea-gulls has been elsewhere by Mr. Morris. The temptation to shoot and bag a *rara avis*, if he is seen, is we fear often irresistible even to a true naturalist and sportsman. But to slaughter our songsters, and to kill wrens, titmice, sparrows, and larks out of mere wantonness, is a barbarity which must be stopped—"C'est pire qu'un crime, c'est une faute." It is worse than cruelty, it is snobbism. "I saw (*pace*, shade of Thackeray), a dead bird, and further on a gun, and there was a snob at the end of it." In other countries, in France and Holland, laws have, we believe, been passed for the protection of birds; but we hoped this was unnecessary in England; it seems that we are mistaken. We have been a good deal in France; there *le sport* is carried on grandly, *On chasse partout*. The chasseur starts early with everything complete, gun, game-bag, gaiters, three or four dogs of breeds difficult to define, but first-rate at scenting tits, a *tout ensemble* that augurs at least ten brace of partridges. But he is a happy man, if after a long day's work among hedges, vines, mulberry-trees, and high-roads, he finds in it besides



several “grives,” one partridge and one snipe. And what are these “grives?” Small birds, alas! of every species from thrush to redbreast. At Monaco a dish was presented to us one day at a *table d’hôte*, which actually figured on the menu as *rouge-gorges*, or redbreasts! Englishmen shuddered as it was handed round. Are we coming to this in England? Do members of the renowned sparrow-clubs live on wren-tart or tit-pudding? And what is the consequence of the *chasse* in France, and what will it be in England? In France one never hears a bird sing, one hardly ever sees a bird fly.

“Tam bellum mihi passerem abstulistis!  
O factum male! O miselle passer!”

Poor little fellows! To think that the lordly snob of creation should have power to take away their life, and to make their song cease for ever, and their feathers mingle with the dust—for nothing! If these gentlemen must shoot something, let them breed a few chickens or pigeons, as their betters do pheasants, and they can have as good sport as a battue of pheasants, and eat their victims afterwards; but let them not rob the public of their property, and the farmers of their benefactors. If we allow these murderers to go at large, we shall soon, as in France, never hear a song-bird; we shall never see our dear little wrens, and tits, and black-caps, and yellow-hammers, who will go to live

where "villainous saltpetre" and vulgar fellows do not co-exist. We are intensely fond of sport, but we ever uphold that the true sportsman is most truly merciful; he hates to kill anything uselessly; he hates to kill anything by slow degrees, and is more annoyed at winging a bird than at missing him; but above all, he hates useless slaughter; and we well remember the sickening remorse with which we contemplated a single gull we once killed—uselessly! We sincerely hope that, if nothing else will succeed, Acts may be passed for the protection of small birds, as well as for the protection of salmon.—QUID.

We have for some time intended writing a few lines on this subject, having been much disgusted with the shooting of swallows close to our house by some either very ill-disposed or very thoughtless person. It is difficult to know whether to pity most the perpetrator of such wanton cruelty, or the harmless victims of it. A short while ago these useful little birds (swallows, martins, and swifts) positively swarmed in this neighbourhood, but now their numbers are very small indeed. We have no doubt a considerable number of the helpless nestlings have been starved to death, occasionally with the wounded parent dying a lingering death beside them, unable to fetch the much-wanted food; would that the perpetrator of such lamentable cruelty could have witnessed the effects of it in all its heartrending details! We remember five or six years ago, a person

wrote a letter in a sporting newspaper upon "Rooks:" he began with the remarkable assertion, "The rook is a useless bird;" he went on to say the rook was an enemy to the farmer, and destructive to game, and finished by advocating extermination. When one called to mind, "God created . . . and every winged fowl after his kind, and God saw that it was good," and again, "God saw everything that He had made, and behold it was very good," one felt inclined to exclaim, "Ignorant and presumptuous man!" Man had indeed disturbed and is going on disturbing the balance of nature amongst God's lower creatures, and assuredly man will suffer for it. We cannot remember when agitation commenced about the wanton destruction of the feathered race, but it certainly has been going on for a good many years; and we often wonder (not without some impatience) when agitation is to cease and legislation is to begin; no observant and thoughtful man can shut his eyes to the fact that matters are becoming very serious, and that legislation in the matter, sooner or later, there must be. We all know that "prevention is better than cure;" and it will certainly be easier to protect birds (all of which we believe have their use) from extermination, than to restore them after extermination; after, perchance, "the caterpillar, the canker-worm, and the palmer-worm, God's great army," have taken possession of the land and devastated it. Now, there are two subjects which seem for some time to have been

attracting public attention ; one is that of the sea fisheries, and the other the destruction of small birds ; and we maintain that, so far as the people of this land are concerned, these two subjects may fairly and most fitly be considered together, as they both bear directly or indirectly upon the supply of human food ; in the one case fishermen are bringing ashore fish unseasonable and useless, destroying the fry, and in other ways gradually, but not the less surely, exterminating some of the more valuable kinds of our sea-fish ; in the other case, birds—many of which may be said to preserve and protect our crops from the caterpillar, &c.,—are being exterminated, partly through “ignorance and thoughtlessness,” and partly through “cruel selfishness,” as in the case of the destruction of swallows already instanced. Is there no member of Parliament who could be induced to take the matter up ? move for leave to bring in a Bill (having in view the supply of food), and have a commission appointed, consisting of scientific naturalists and others, to thoroughly investigate both matters ? And we cannot help thinking that one season’s careful investigation by well-qualified men would serve to produce such evidence in the case of sea-fisheries, as well as birds, as would enable the legislature to pass some useful measure for the benefit of the country at large. There are certain things which, we think, should as soon as possible be made punishable ; viz., Sunday shooting. We would add, the

shooting of such birds as swallows, the usefulness and harmlessness of which no one can have a doubt. We should like to see a larger tax on guns. We do not consider 2s. 6d. sufficient; why should it not be at least as much as the tax upon dogs? There are surely more dogs kept, entirely or partly for protection from the housebreakers, than there are guns used for a livelihood; in fact, the latter is, in proportion, oftener kept and used for amusement than the former, and therefore, we should say, tax it as heavily; and depend upon it, a revenue would be raised sufficient for all protective purposes.—  
PERDIX.

At the risk of tiring our reader, we can hardly resist giving the following valuable letter on “rooks” and “grubs” from our friend Captain Mackenzie, of Findon, which appeared in the popular and excellent journal, the *Inverness Courier*:—

The outcry in Easter Ross against the rooks is like an echo of a past age, before natural history or any other science was deemed a profitable study for the bucolic mind. I thought that in a country of enlightened feeling like this, so barbarous an institution as a Rook or a Sparrow Club was impossible. Are prejudices too strong in this matter to yield to either arguments or proof; or is it worth while still to bring these forward, in the hope of convincing farmers that what is proved to happen in other places must be true in their case?



I have before me a new book on the "Science and Practice of Farm Cultivation," by Professor Buckman, of the Royal Agricultural College; and in a chapter on farm-pests, wherein he gives a list so alarming of blights, vegetable and animal, that one marvels how any crops are raised at all, he says, speaking of the ravages of the wire-worm—"This large increase of worms we have ever observed in districts where rooks are few or much molested. The rook is a constant visitor to the clover field; but when the plant is young he is driven off, because the farmer cannot think what else he can come for but clover buds; and when he sees some of these strewing the ground where the birds have been, he is confirmed in his opinion. But if he carefully looked at the buds themselves, he would find them of a sickly hue, however recent the attack; and if he looked deeper he might find the real enemy. Fortified, then, with repeated observations of this kind, if asked how best to keep under wire-worms, we say, most unhesitatingly, encourage the rook: *he is one of the farmer's best labourers*; and though, like John, and Dick, and Hodge, he will sometimes run into mischief, it is surely better to institute a judicious police than to condemn and execute without very strong evidence.

Yarrell, in his beautiful "British Birds," has the following remarks upon this highly-important subject:—"The attempts occasionally made by man to interfere with the balance of powers as arranged and

sustained by Nature are seldom successful. An extensive experiment appears to have been made in some of the agricultural districts on the Continent, the result of which has been the opinion that farmers do wrong in destroying rooks, jays, sparrows, and, indeed, birds in general, on their farms, particularly where there are orchards. In our own country, particularly on some very large farms in Devonshire, the proprietors determined, a few summers ago, to try the result of offering a great reward for heads of rooks; but the issue proved destructive to the farms, for nearly the whole of the crops failed for three successive years, and they have since been forced to import rooks and other birds to stock their farms with. A similar experiment was made a few years ago in a northern county, particularly in reference to rooks, but with no better success; the farmers were obliged to reinstate the rooks to save their crops."

But, perhaps, the most interesting account of the value of rooks will be found in an extract from the 'Magazine of Natural History,' vol. 6, page 142 :—

"In the neighbourhood of my native place" (in the county of York), says the writer, Mr. T. Clitheroe, "is a rookery belonging to W. Vavasour, Esq., of Weston, in which it is estimated that there are 10,000 rooks; that 1lb. of food a-week is a very moderate allowance for each bird, and that nine-tenths of their food consists of worms, insects, and

their larvæ; for, although they do considerable damage to the fields for a few weeks in seed-time and a few weeks in harvest, yet a very large proportion of their food, even at these seasons, consists of insects and worms, which (if we except a few acorns and walnuts in autumn) compose at all other times the whole of their subsistence. Here, then, is the enormous quantity of 468,000lbs., or 209 tons of worms and insects and their larvæ, destroyed by the rooks of a single rookery in one year. To everyone who knows how very destructive to vegetation are the larvæ of the tribes of insects, as well as worms, fed upon by rooks, some slight idea may be formed of the devastation which rooks are the means of preventing.”

Let this, then, suffice for the rooks; but starlings, wagtails, larks, and other birds, are also helpmates to the farmer; and, therefore, the wanton destruction of these will certainly bring, nay, has already brought, a great amount of trouble upon the cultivators of the soil. The destruction has been committed by clubs and societies established for the purpose; but, as their members are mostly filled up with all sorts of prejudices—few being naturalists or even accurate observers—it becomes daily a matter of more pressing importance that middle-class education, if not national school teaching, should recognize the value of the natural sciences.

Thus far Mr. Buckman. Let us now see the opinions of Mr. Waterton, the celebrated naturalist,

who writes in the year 1844 "On the projected banishment of the rooks from Scotland." He says, "In the nineteenth century—fruitful epoch of discovery—the Scotch farmers have found out that the rooks, so much prized by their ancestors, are a set of pilfering and plundering thieves, and that they ought to be treated in no other light than that of rogues and vagabonds; wherefore, they have now solemnly denounced their former black friends, and they have advised the country gentlemen, as they value their crops, to show no mercy to the rooks, but to kill them whenever an opportunity shall offer." And, in a letter that follows, to J. M. Hog, Esq., of Newliston, he declares, "I hold the rooks in great request; we have innumerable quantities of these birds in this part of Yorkshire, and we consider them our friends. They appear in thousands upon our grass lands, and destroy myriads of insects. After they have done their work in these inclosures, you may pick up baskets full of grass plants, all injured at the root by the gnawing insect. We prize the birds much for this, and we pronounce them most useful guardians of our meadows and pastures. Whenever we see the rooks in our turnip fields, we know then, to our sorrow, what is going on there; we are aware that grubs are destroying the turnips, and we hail with pleasure the arrival of the rooks, which alone can arrest their dreaded progress. I have never seen the least particle of turnip or of turnip-top, in the crows of the rooks, either

young or old, nor does any farmer in our neighbourhood complain that his Swedish turnips are injured by the rook. Whilst the ring-dove is devouring the heart-shoot of the rising clover, you may see the rook devouring insects in the same field. . . . The faults of the rook in our imperfect eyes are as follows :—It pulls up the young blade of corn on its first appearance, in order to get at the seed grain still at the root of it. The petty pilfering lasts about three weeks, and, during this period, we have a boy at threepence a-day, sometimes sixpence, to scare the birds away. Some years we have no boy at all. Either way the crops are apparently the same in quantity every year. . . . I defend my sable friends, the rooks, here in England, on account of their services to the land. Should the adverse party effect their extirpation in Scotland, and then suffer the ravages of the grub, I will, at any time, be happy to send you a fresh supply of these useful and interesting birds.

*The Legal Season for killing Game.*

Kinds of Game.	England and Wales.		Scotland.		Ireland.	
	Begins.	Ends.	Begins.	Ends.	Begins.	Ends.
Grouse ..	Aug. 12	Dec. 10	Aug. 12	Dec. 10	Aug. 20	Dec. 10
Blackgame	Aug. 20*	Dec. 10	Aug. 20	Dec. 10	Aug. 20	Dec. 10
Partridge	Sept. 1	Feb. 1	Sept. 1	Feb. 1	Sept. 20	Jan. 10
Pheasant	Oct. 1	Feb. 1	Oct. 1	Feb. 1	Oct. 1	Feb. 1
Quail ..	..	..	..	..	Sept. 20	Jan. 10
Landrail ..	..	..	..	..	Sept. 20	Jan. 10

\* In Somerset, Devon, and the New Forest, black game shooting begins on Sept. 1.

What is comprised in the word “game” varies slightly in Ireland from the rest of the kingdom.



In England and Scotland there are included under this head pheasants, grouse, partridges, blackgame, bustards, ptarmigan, and hares. But although not included as "game," quails, landrails, and deer cannot be killed without a licence, nor can woodcocks, snipe, or rabbits. There are, however, certain exceptions. For instance, hares and rabbits may be killed by the owner or occupier of the land without a licence, or by a person who has his direction; but the two kinds of animals do not stand upon equal footing. The owner or occupier can authorize any number of persons to kill rabbits, by merely giving them verbal permission; but for the killing of hares he cannot give authority to more than one person at a time for the same parish, and such authority must be in writing, in the form stated under the head "Stamp and other Government Duties," at p. 21.

Game in Ireland comprises deer, pheasants, partridges, landrails, moor game (blackgame), hares, grouse, quail, wild turkey (bustard), and heath game (ptarmigan). Woodcocks and snipe are not game, but cannot be killed without a licence, although ducks, teal, widgeon, and other waterfowl may. Neither rabbits nor plover of any kind are game.

Under the Irish law a property qualification is required as well as a licence in order to be legally entitled to kill game. The qualification is a freehold estate of £40 per annum in value, or personal estate

worth £1000. This qualification is not required for woodcocks, snipe, rail, &c.; but it extends even to the keeping of sporting dogs of all kinds. Hares may not be *bought* or *sold* in Ireland from the first Monday in every November until the first Monday in July following, under a penalty of not more than £5. The law does not apply to *killing*, however.

An erroneous impression is indulged in by many, that white and pied pheasants are bad things to have in your preserves, because they are such good marks for poachers. This is perfectly fallacious, as all birds when seen on a tree at night seem to be of the same colour—all you see is a dark mark in the shape of a bird; but they are, on the contrary, great assistance to a keeper in preserving his other birds, and for this reason:—A preserve may be gradually stripped of its birds without the keeper knowing, as, where they are all of the same colour, he would not be so likely to miss them; whereas if he did not see his white or pied birds at the feed, he would know that some foul play had been going on, and, consequently, keep a sharp look out; besides which, these birds are not so apt to stray as the common ones. And again, we would recommend all keepers to have a few white rabbits in each of his woods and coppices, and for this reason. A correspondent writes:—“I was shooting in Flintshire, in the large preserves of a friend who has one of the best keepers I ever saw, and I observed that he had many white rabbits in all his woods, and which the keeper asked

me not to shoot at. I asked him why he liked them, when he replied, ‘ Why, sir, they are better to me than half a dozen watchers, and often save me miles of walking, as in a dark evening or moonlight night the common rabbit cannot be seen, whereas, if in looking at a covert a mile or so off, and I don’t see my white rabbits at feed, I know that there must be either dog, vermin, or poacher in the wood; but, on the contrary, if they are out, I know that they are safe, and a long walk is spared me.’ ”

Allied to the sport of the moors is that of the rod salmon fishings, now become a source of revenue to the Highland proprietor. Twenty-five or thirty years ago these were little thought of, and liberty was easily obtained to fish in any river where the net or the coble were not in use. Rod-fishings *were* let, however, at that time, since a gentleman, well known at this day as a keen salmon-fisher, rented about *nine miles* of the River Dee, on the Marquis of Huntly’s estate, for *five* pounds a-year—the same water is now let for about *five hundred*. Extravagant rents are fearlessly demanded and cheerfully paid for good rivers, or rather for certain portions of rivers, affording perhaps only four or five good casts. Several of the best salmon rivers are farmed; that is to say, let at so much per day, or week, or month. About fifty pounds is the average sum per rod for the season, and ten shillings per day is usually demanded. In neither case has the successful captor any interest in his fish after it is

fairly landed—it becomes the property of the tacksmen or *entrepreneur* of the fishery. The reviewer concludes with an eulogium on hill-sports, truly enthusiastic and merited. For that glorious life on the hill, who can set forth in fitting terms the sense of happiness, of contentment, it brings with it! No words could ever convey to him who has not tried it an idea of the singular fascination it exercises on its votaries, of the marvellous rapidity with which the passion for it grows upon them; and it would be idle to say aught in its praise to him who has been fortunate enough to enjoy its delights. There are some persons whose life is but one round of pleasure; even by such as these the change from Pall Mall and the Park, or from the Club-house at Cowes and the Solent, to the wide moor and the homely shooting-lodge, is held to be an agreeable variety, not unworthy of considerable pecuniary sacrifice and personal inconvenience for its attainment. But to the man whose whole time and thoughts have been devoted unremittingly for many long months to the hard realities and the engrossing cares of an active business life, the transition from the whirl and tumult of the crowded city to the calm and solitude of his isolated Highland home is something more; it is new existence. His rude quarters are luxury; his hardest exercise is rest to him; his excitement relaxation; his amusement a restorative cordial. As his valedictory address to his desk or his study, he may say, as Horace said of *his* loved mountain retreat:—

“Hæ latebræ dulces, et jam, si credis, amœnæ,  
Incolumem tibi me præstant Septembribus horis.”

[This pleasing, this delicious soft retreat,  
In safety guards me from September's heat.]

It would be very desirable that Agents kept notes of salmon rivers similar to the following statement:—

#### THURSO RIVER ANGLING.

*Extracts from the Log Book of Thurso River.*

*Number of Salmon killed by the Rod and Fly from  
1st February to 1st June in each year, from the  
year 1852 to 1867 inclusive.*

Year.	Average No. of Rods Angling.	No. of Salmon Killed.	Remarks.	Weight in lbs.
1853	4	356	February and March this season was good, but April and May very dry; river low, and bright sun.	3654
1854	4	279	From 1st February to 6th March only ten fish killed; river frozen over, and deep snow—good latter on.	3907
1855	5	954	This was a good season, and plenty of fish.	9674
1856	5	353	This was the driest season known on the river, not a shower from 24th February to 24th June.	3615
1857	5	426	This was an ordinary year; few spates.	4410
1858	4	411	This was an excellent year, had the river been let as usual, but the upper and best half was let to one gentleman, who fished very easily.	4013
1859	5	658	This season the river continued all along in high spate, and the fish ran up.	6611
1860	5	1041	This was one of the best seasons.	10,132
1861	5	544	This would have been a good season but for the weather, which was so exceedingly boisterous as very often to entirely prevent fishing.	5544
1862	6	495	Good at the beginning, but bad at the latter end.	4821
1863	6	1510	The best season known on the river.	14,666
1864	5	560	Hardly an average season; too dry.	5344
1865	6	452	Good at the commencement, but bright and dry in April and May; very little sport.	4397
1866	6	394	Very indifferent season; good at the beginning, but poor afterwards.	3397
1867	6	721	This was a very fair season, and had the weather continued favourable for fishing, it would have come up over one thousand fish.	7360
Total Salmon.. 10,259			Weighing .....	101,445

The whole river is limited to seven rods; during February there are seldom more than three or four,



and in March five or six—thus showing an average of five rods for the four months of February, March, April, and May. The total number of salmon killed in the above fifteen years was 10,259, weighing 101,445 lbs., or an average to each rod of 137 fish, or better than one fish per day for the four months' angling. No kelts are ever counted. After the 1st of June the spring fishing ceases, and the angling then belongs to the gentlemen who rent the moors. The number of salmon and grilse they and their friends kill is difficult to get at. On an average, it is equal to about 250 salmon and grilse per annum. In 1855 we have known six rods bring in on one day thirty-five splendid fish; some had as many as ten, others from two to seven, and none blank. The same year one gentleman landed no less than nineteen one day, averaging about 10 lbs. each. In 1863 the sport was even better. The fish are not large, but very handsome. We have got every year many above 20 lbs., and a few each year over 25 lbs., and occasionally one of 27 lbs. and 28 lbs.; the largest ever killed was 32 lbs.

We are constantly hearing of prosecutions under the Fishery Act. It is, therefore, with much pleasure that we hail the formation of associations for the protection and preservation of salmon in various parts of the country. At a meeting of the proprietors of the upper waters of Lough Corrib, in Galway, the following resolutions were passed unanimously:

1. That we, the proprietors of the upper waters

of Lough Corrib and its tributaries, form an Association to co-operate with the conservators of the district in the preservation of salmon on our respective estates, and in assisting and protecting them in their run from the sea to the waters in which we are interested.

2. That the expenses entailed by working such Association be met by an annual subscription of £1 each.

3. That any one interested in the work, though not a proprietor, may become a member of the Association on payment of an annual subscription of £1.

4. That there shall be two general meetings of the Association in the year, to receive the report of the secretary and his statement of accounts; due notice of such meetings to be given in the local papers. Three members to form a quorum.

5. That the secretary be empowered to call a special meeting of the Association when circumstances arise rendering such a course desirable.

6. That, though distinct from the Board of Conservators, we desire to act with them, and to strengthen their hands in carrying out the objects for which they were appointed, namely, the protection of salmon during close time, and the due observance of the law at all times.

7. That the secretary be directed to get names, and to collect subscriptions from all proprietors and others interested in the above work, and to open an account at the National Bank.

8. That the money be lodged to the credit of the Association, and be drawn by cheques, signed by the secretary and two members of the Association.

9. That the secretary be authorized to appoint an assistant to help him to carry out the objects of the Association.

Whilst on the subject of game and animals, we may, perhaps, be excused giving the following singular facts in relation to animal and vegetable food, which appears in Bentley's "Health and Wealth :—" It is a fact worthy of remark, and one that seems never to have been noticed, that throughout the whole animal creation, in every country and clime of the earth, the most useful animals cost nature the least wealth to sustain them with food. For instance, all animals that work live on vegetable food; and no animal that eats flesh works. The all-powerful elephant and the patient untiring camel, in the torrid zone; the horse, the ox, the donkey, in the temperate; and the reindeer, in the frigid zone, obtain all their muscular power for enduring labour from nature's simplest productions, the vegetable kingdom. But all the flesh-eating animals keep the rest of the animated creation in constant dread of them. They seldom eat vegetable food until some other animal has eaten it first and made it into flesh. Their only use seems to be to destroy life—their own flesh is unfit for other animals to eat, having been itself made out of flesh, and is most foul and offensive. Great strength,

fleetness of foot, usefulness, cleanliness, and docility, are then always characteristic of vegetable-eating animals; while all the world dreads flesh-eaters.

The intelligent farmer who directs his energies with the zeal and spirit which begin to characterize his class, who looks at his profession with pride and pleasure, and considers agriculture an art to be associated with and assisted by scientific inquiry, is as far superior to the silken dandy, who may think him a clodhopper, as one class of beings can be to another. To the intelligent farmer nature unfolds her beauties as well as her bounties. His is the honest heart, the liberal soul, the ardent mind, the fresh imagination. He makes the best of parents and citizens, the most disinterested of patriots. Between the well-systematized labours of his life are intervals of leisure for general reading and improvement, enough to give him all the information necessary for individual culture and social enjoyment. Though every farmer should look first to the general fertility of his farm, as the foundation on which all improvements are to be laid, he would be utterly wanting in the true spirit of his profession if he did not design, in due time, to crown his whole work by every domestic comfort and appropriate rural ornament. The business of agriculture is not one of merely practical utility. The farmer is not necessarily a dull swain. His pursuits are consistent with the keenest admiration of the beautiful in nature and art, with the most refined taste, and

with all the graces of cultivated life. He owes it to himself as a rational being, gifted with all the capabilities of his race, to the obligations of domestic duty, and, above all, to the devotion which we all acknowledge to that gentle sex, whose smiles are the crowning bliss of life, to provide, for his own and his family's enjoyment, all the comforts and embellishments which belong to a mature civilization. Among other high duties is that of properly educating his children. And to such of them as are destined to pursue his own profession, he should give much more than that teaching which stops at a knowledge of the mere routine of farm practice. Agriculture seems to be the first pursuit of civilized man. It enables him to escape from the life of the savage and the wandering shepherd into that of social man, gathered into fixed communities and surrounding himself with the comforts and blessings of neighbourhood, country, and home. The savage lives by the chase, a precarious and wretched dependence. The Arab and the Tartar roam, with their flocks and herds, over a vast region, destitute of all those refinements which require for their growth the advantages of a permanent residence, and a community organized into the various professions, arts, and trades. They are found now, after a lapse of four thousand years, precisely in the same condition as that in which they existed in the days of Abraham. It is agriculture alone that fixes men in stationary dwellings,



in villages, towns, and cities, and enables the work of civilization, in all its branches, to go on.

In Scotland the damage done by dogs to sheep is comparatively trifling; but the destruction of game is very large. A very excellent letter on the subject appeared in a recent number of the *Field*, the essence of which we are tempted to give. A Scotch colly, in good training, can run almost as fast as a greyhound—quite fast enough to catch mountain hares; and when they hunt in couples, as they often do, many indeed are their victims, more especially when puss is about to become a mother, and before the leverets have attained their perfect maturity. Young grouse, blackgame, &c., are frequently killed, for a Scotch colly possesses an excellent nose, and soon gets as “cunning as a fox.” When they once really take to self-hunting, they are seldom of much use to their masters afterwards; but this the latter are rarely willing to admit, for reasons, probably, closely connected with hare-soup and grouse-pie. Thus the canine poacher is spared on account of the predilections of the human poacher, for in many cases the shepherds are nothing else. It may be said that our assessed taxes should furnish an effectual remedy for this sort of thing, but they do not. As Burns says, “Facts are chiefs that winna ding;” and this is a fact which, disagreeable as it undoubtedly is, we cannot ignore. The Inland Revenue officials, apart from the difficulty which necessarily presents itself

of determining the number of dogs *bonâ fide* used by the farmer in his legitimate employment, are by no means willing to move in this matter; and the proprietor, or shooting-tenant, who takes an active part in forcing them to do so, heaps on his devoted head an amount of odium which is certain to be detrimental to his sport on the ensuing 12th of August. Our idea is that every farmer should be allowed to keep, free, a certain number of dogs, proportionate to his stock of sheep—say one dog for 300 or 400 sheep—and for every dog kept above the statutory number he should have to pay a tax of £1 per annum. This, we think, would prove a salutary check, and would really do farmers good, for it is worse than useless keeping a pack of curs. We have actually counted a dozen collies at a farm, the sheep stock of which did not exceed 2500; and for this number of sheep seven, eight, or nine dogs are about the usual number. Now, this is clearly excessive. To manage 2000 black-faced sheep three good shepherds are sufficient; and, even allowing two dogs to each man, would give us six as a requisite number of dogs to manage this number of sheep; or say three dogs per 1000 sheep, which is ample. As regards farms where no sheep are kept, but only cattle, it is not so easy to suggest a mode of limiting the number of dogs, but there certainly can be no need for more than one dog for each cattle-man; and where only a dozen or so of cattle are kept, we would regard a dog as more of a

nuisance than anything else. For cotters, with their one or two cows and their stirk, to be allowed to keep a cur, is really too bad; and it would be advisable to provide that no tenant paying less than £30 or £40 of annnal rent, and if he keep no sheep, should be allowed to have a dog without paying the tax of £1. Such a tax might be easily enforced, especially if the number of sheep on the farm was assumed to be that mentioned in the lease; and anyone introducing such a Bill into Parliament would be conferring an inestimable boon on every proprietor and on every shooting-tenant throughout the length and breadth of Scotland.

Let it not be considered that we dislike this truly noble animal. On the contrary, we all but love them. We well remember when we returned from abroad, how the good old dog who had seen better days came running up to welcome us. How he looked at us somewhat surlily, and heaved a suppressed growl; how all at once his countenance changed; how he sprung, hopped, and leaped upon us, licked our hands, wagged his tail, murmuring in a soft voice, quite overcome with joy! We patted his aged head, and said, "Poor Rover!" The old dog's noble heart gave way—he licked our shoe, and moistened it with a tear! The pain, fatigue, and mental suffering they endure for their masters is the admiration and marvel of the whole world. It is, in fact, almost impossible to form any idea of the hardships and privations undergone by the

faithful dog, who, when thoroughly astray, and on the tramp for weeks together, pursues with undeviating purpose the right and sure road to his dearly loved master, and a return to those scenes of his puppyhood and happiness which constitute his sole pleasures, and are the chief object of his existence. Should he happen to be a rare and envied species, he is liable to be laid violent hands on and firmly secured; perhaps, too, in spite of all his ingenuity and cunning, never again to get the chance of renewing his journey, or even of obtaining his ordinary freedom. Temptations on his voyage of discovery will frequently present themselves, and have to be met and withstood with unflinching resolution. Hunger has to him no terrors; he wavers not before the proffered bone; the parched tongue and burning thirst he bears with unyielding fortitude, neither do tender inducements influence his progress; affectionate greetings he stares coldly in the face, and firm of purpose he resists alike the friendly pat, and fond invitations to tarry and be welcome. Neither has he the time or inclination to notice or return "the insolence of office," and the spurns which are hurled at him from corner to corner as he hastens rapidly on, dejected, nervous, starving, and footsore. Is not such a pilgrim worthy of our love and respect? he is the canine hero and champion of those principles of honour, virtue, truth, and constancy which are the pride and boast of human nature—a martyr

to fidelity, and the slave of ungrateful man. The Queen in her Journal thus alludes to one of those faithful animals:—"Poor dear old 'Monk,' Sir Robert Gordon's faithful old dog, was sitting there amongst us all." How simple, how very touching these words, from one in so exalted a station. What a proof of a warm and loving heart.

According to the Chancellor of the Exchequer, there are three hundred thousand dogs within the United Kingdom for which their owners pay license, and it is computed that only one dog in ten is so licensed. Therefore we have amongst us no fewer than three millions of dogs. As for cats, we have no such clear statistics; but we may set them down at double the number—that is, six millions, as against three of their canine enemies. The sum that these animals cost their owners per annum is something prodigious, and may be computed as follows:—

Dogs licensed—three hundred thousand at 12s. per annum . . .	£1,800,000
Three million dogs' keep—say 1d. per diem, or £1 10s. 5d. per annum . . . . .	5,150,000
Three hundred kennel keepers at £1 per week, or £52 per annum .	15,600
Six million cats' keep, at $\frac{1}{2}$ d. per diem, or 15s. $2\frac{1}{2}$ d. per annum .	5,150,000
	<hr/>
	£12,115,600



Or more than the whole revenues of the Germanic Confederation of the present day.

A correspondent in the *Montrose Standard* makes out a difference of nearly £3,000,000 in this estimate. He puts the sums as follows :—

Dog licenses, at 12s. . . . .	£180,000
Keep of dogs, at 1d. per day . . .	4,562,500
Wages of keepers, at £52 . . .	15,600
Keep of cats, at $\frac{1}{2}$ d. per day . . .	4,562,500
	<hr/>
	£9,320,600

Even with this estimate, the amount is a startling one, and, so far as the number of animals is concerned, does not appear exaggerated. Taking the population of the United Kingdom at thirty millions, the estimated number of dogs give 1 to every 10 of the population, and of cats, 1 to every 5.

On the very important subject of land drainage, we have said a good deal in “Hints on Farming.” The subject should have a large share of attention from the Agent. There is hardly one farm out of twenty in this country but needs draining, and no farmer ever raised a good crop of grain on wet ground, or on a field where pools of water become masses of ice in the winter. In such cases, the grain plants are generally frozen out and perish; or, if any survive, they never arrive at maturity, nor produce a well-developed seed. In fact, every observing farmer knows that stagnant water,

whether on the surface of his soil or within reach of the roots of his plants, always does them injury.

Solomon says, "All the rivers run into the sea." But the grievance is that they don't; for whether or not the Oriental streams with which the wise king was familiar may have overflowed, like the Nile and Jordan, it is certain that English fresh waters at the present day seem to linger in the valleys and repose in the meadows, or wander anywhere rather than roll straight down to the ocean.

Drainage is on strong land a subject of great importance. Two plans may be adopted. According to the first, the tenant does the labour, landlord finding pipes. This is the easiest for the pocket; but it is difficult to get the tenants to carry out orders, and frequently the pipes are buried far too shallow. The other and the better plan is for the owner to do the whole work, and charge a fair rate of interest, say £6 per cent. In either case, the agent must arrange the plan of work, and see that it is done in a satisfactory way; and after completion he must be ever on the watch that outlets are not neglected, that ditches are kept properly scoured out, &c. The want of observation as to such things is often incredible. So long as we can find tenants ready and eager to pay the increased rental on account of drainage, so long may we continue to drain. At the present day facilities unknown to our forefathers exist for borrowing money for per-

manent improvements. Want of ready money is now no obstacle to progress. Indeed, we consider that on entailed estates it is only right that the payment of works calculated to increase future value should be spread over the future, and not be allowed to suck up the ready money which ought to be put aside for the younger branches of the family.

A very important question was recently tried in the Court of Session, as to whether an entailed proprietor who has effected drainage improvements upon the entailed estate by means of loans received from the Drainage Commissioners, under the Act 9 and 10 Vict., c. 101, and which loans have been repaid by the borrower, is entitled to charge said improvements, or three-fourths of the cost thereof, upon the entailed estate, under the provisions of the Entail Amendment Act, 11 and 12 Vict., c. 36.

The Lord Ordinary (Mure) held that the provisions of the 38th section of 9 and 10 Vict., c. 101, were conclusive against the claim of the heir.

The Court, in respect of the importance of the point involved, sent the case for opinion of the Second Division and of the Lord Ordinary.

The consulted Judges, with the exception of Lord Barcaple, adhered to the opinion of the Lord Ordinary.

Lord Kinloch's opinion was as follows:—I conceive that where an heir of entail takes advantage of the facilities afforded by the Drainage Acts, he

must do so under the conditions imposed by those Acts, of which the most important is, that the money advanced by Government shall be repaid by means of a rent-charge of £6 10s. per annum, payable by half-yearly instalments for twenty-two years, which is estimated as sufficient to return the advance, principal and interest. He is thus, during his own possession, to make payment of a certain annual sum, composed both of principal and interest; and if he live long enough may have to pay the whole amount. I am of opinion that an heir so situated cannot disengage himself from the statutory compact, and, by recourse to the Montgomery Act, divide between himself and the succeeding heirs of entail the burden of principal and interest, according to the wholly different propositions contemplated in that Act. He would thereby, as I think, break the statutory contract, and introduce an arrangement wholly different from that which the statute enacted, and on the faith of which the statutory advance was made. And if he could not have recourse to the Montgomery Act itself, as little can he betake himself to the substitute provisions of the Entail Amendment Acts. Nor do I think that the heir can better his case by redeeming the debt under the provisions of the Drainage Acts, after the payment of several years' rent-charge. He cannot thereby be in a better position than if he had paid the rent-charge for twenty-two years; when, to lay any part of the

expenditure on the succeeding heirs, would be simply to charge on them a part of his own debt properly paid by himself. It is unnecessary to consider what might be his right if, before entering on the payment of the annual rent-charge, he was enabled out of his own pocket, or by money borrowed on his own security, at once to repay the whole Government advance. He might thereby be only replacing himself in the same position as if he had never asked the Government advance at all. But after he has once entered on the statutory payments, and thus set agoing the statutory proceeding, I am of opinion he is bound to go through with it, and cannot betake himself to any other. He has given to the substitute heir the chance of the statutory benefit, by the whole debt being paid by him during his possession ; subjecting them, on the other hand, to the risk of his early death laying on them a heavier burden ; and he cannot, as I think, alter this state of things, when the lapse of time, or other considerations, may make another arrangement more suitable for himself.

The Judges of the First Division—Lord Curriehill dissenting—adhered to the opinion of the Lord Ordinary and the majority of the consulted Judges.

A verdict was given in December last before Mr. Justice Blackburn in the Court of Queen's Bench, which ought to be generally known, especially to land Agents. Sir Reginald Graham, being desirous of purchasing a house, applied to Messrs. Lockwood, the estate agents, of Grosvenor-street, who sug-



gested to him No. 7, Stratton-street, Piccadilly. Sir Reginald requested Messrs. Lockwood to look over the premises and to give him an opinion as to their value, which Messrs. Lockwood did, sending in to Sir Reginald, the day after he had made this request, a report to the effect that their estimate of the value of the freehold was £3780, but that £250 must be expended in repairs before the house would be habitable. On learning this Sir Reginald informed Messrs. Lockwood that he declined to make the purchase; whereupon Messrs. Lockwood sent to Sir Reginald a bill amounting to £61 17s., being two guineas for their report, 5 per cent. on their estimate of repairs, and  $1\frac{1}{4}$  per cent. upon their valuation of the freehold. This claim Sir Reginald Graham resisted as excessive. The plaintiff admitted that the service he had rendered the defendant took up but two hours and a half of his time, and that he had not made the defendant aware of the heavy expense he was incurring by asking the plaintiff for an opinion as to the value of the property, and the probable cost of repairs. Five other estate agents came forward and swore that Messrs. Lockwood's charge was fair and reasonable, but they all contradicted each other as to what is the custom of the trade in such matters. For the defendant Mr. Rushworth, of the firm of Rushworth and Jarvis, was called, and he declared that ten guineas was the utmost amount that should have been demanded for such a service as

that which Messrs. Lockwood had rendered to Sir Reginald Graham. Three other estate agents and valuers confirmed the statement of Mr. Rushworth, and the jury immediately found a verdict for the defendant.

Now, the farms of this country, though at times during the summer they appear dry, and cracks open on the surface, are not, in fact, dry farms, for reasons already named. On the contrary, nine months out of twelve they are moist or wet; and we need no better evidence of the fact than the annual freezing out of the plants, and consequent poverty of many crops.

If we listen to the answers of farmers, when asked as to the success of their labours, we shall be surprised, perhaps, to observe how much of their want of success is attributed to *accidents*, and how uniformly these accidents result from causes which thorough draining would remove. The wheat crop of one would have been abundant had it not been badly frozen out in the fall; while another has lost nearly the whole of his crop by a season too wet for his land. A farmer at the West has planted his corn early, and late rains have rotted the seed in the ground; while one at the East has been compelled, by the same rains, to wait so long before planting that the season has been too short. Another, because he had not time to wait for it to dry, has worked his *clayey* farm so wet that it could not be properly tilled. And so their crops have wholly

or partially failed, and all because of too much cold water in the soil. It would seem, by the remarks of those who till the earth, as if there were never a season just right, as if Providence had bidden us labour for bread, and yet sent down the rains of heaven so plentifully as always to blight our harvests. It is rare that we do not have a most remarkable season, with respect to moisture especially. It is always too wet or too dry. *Too much cold water* is at the bottom of most of these complaints of unpropitious seasons, as well as of most of our soils; and it is in our power to remove the cause of these complaints and of our want of success—

“The fault, dear Brutus, is not in our stars,  
But in ourselves.”

We must underdrain all the land we cultivate that Nature has not already underdrained, and we shall cease to complain of the seasons. We shall seldom, upon properly-drained land, have a season that is too wet or too cold, or even too dry; for thorough draining is almost as sure a remedy for a drought as for a flood. It is a frequent complaint among farmers that the drained land becomes wet, and they throw all the blame on the drainers, when the fault is their own: they forget that drains require to be kept clean as well as made. They seldom clean the openings of the principal drains, but suffer the weeds and mud to choke them. So much has been said upon this subject in our “Hints

on Farming," that we shall only here give a table which will be found very useful in saving the Agent much calculation. Of course, the expense of draining will vary according to circumstances. The cost and the distance of carriage of the materials will influence this, as will also the necessary variation in draining from the greater or smaller number of drains required on an acre, and this of itself must vary with the wetness of the soil. All these circumstances combined require a wider range of figure than at first sight would appear to be necessary. Everyone who is acquainted with agriculture knows how profitable it is to drain and improve land. In many districts draining land pays thirty per cent., that is, it will repay the whole sum laid out upon it in a little more than three years.

The following account of land improvements, from the Highland Society's *Journal of Transactions*, will prove very interesting, as showing what can be done even so far north as Caithness. The works were carried on at Dounreay and Murkle. The details are contributed by Mr. William R. Tait, C.E. (factor for Sir Robert Sinclair), under whose superintendence the works were carried out; and we are glad to learn that the paper has been rewarded with the gold medal premium of the Highland Society.

From what Mr. Tait remarks, it appears that there are at present lying waste in Caithness thousands of acres of land which are capable of profit-

able cultivation. A technical difficulty arises with regard to redeeming part of it through the instrumentality of the Drainage Commissioners, namely, the minimum depth at which they require drainage works to be executed; but this may be got over. And Mr. Tait gives two most striking examples, both coming within his own practical experience, of the prudence and profit of engaging in the reclamation of waste land in the county of Caithness. One immense advantage is, that comparatively little of the land requires trenching. In other counties people are thankful if they can put a plough in new land under a preliminary cost of £14 or £15 per acre for trenching, draining, &c.: at Ardross the average cost was £22 14s. 1d. per acre. But in Caithness the position of matters is quite different:—

In Caithness there is an immense extent of improvable land, ranging in depth from 3 feet to 18 inches, which, when properly drained, bears remunerative crops. The great peculiarity of this land is, that very little of it requires trenching; not one acre of upwards of 2000 improved upon Sir Robert's estates within the last six years required to be trenched. After the land is drained it is ready for ploughing, and if ploughed in autumn it is ready for an oat crop the following spring; and with an application of  $2\frac{1}{2}$  to 3 cwt. of guano per acre, it yields from three to four quarters of oats per acre."

Having such a subject to work upon, it is little



wonder that the late proprietor, Admiral Sir John Gordon Sinclair, and his son Sir Robert, the present baronet, turned their attention to the improvement of the family estates. They looked out for a suitable person to report upon the necessary works, and the Marquis of Tweeddale recommended Mr. John Mitchell, agent for the National Bank at Dingwall, and well known in Ross-shire and Morayshire as a skilful and successful agriculturist. Mr. Mitchell was requested to visit the country, and did so in 1856, three years before the then current leases should expire. The rental of the two estates of Dounreay and Murkle was at that time under £2200 a year. Mr. Mitchell proposed to spend £14,200 on buildings, fences, and roads, besides a large sum for drainage, which should be repaid by the tenants at the usual drainage rent-charge of  $6\frac{1}{2}$  per cent. The result, he said, would be a clear gain of upwards of £1100 a year. Mr. Mitchell's views were adopted by the proprietor, and they have been carried out by Mr. Tait, the factor, at less expense and with more profit than even the projector anticipated. The following is a statement of the details of expenditure and revenue:—

*Buildings.*

Estate of Dounreay	£6,620	11	$6\frac{1}{2}$	
Estate of Murkle	.	2,968	8	11
Miscellaneous	.	61	8	$5\frac{1}{2}$
		<hr/>		
		£9,650	8	11

Brought forward . . . . £9650 8 11

*Drainage.*

Estate of Dounreay	£3,741	9	5½	
Estate of Murkle .	2,771	3	4	
Tiles for Dounreay and Murkle .	2,672	19	5½	
	<hr/>			9,185 12 3

*Ring Fences.*

Estate of Dounreay	£784	3	10½	
Estate of Murkle .	323	5	5½	
	<hr/>			1,107 9 4

*Interior Fences.*

Estate of Dounreay	£414	7	9	
Estate of Murkle .	486	16	10½	
	<hr/>			901 4 7½

*Farm March Fences.*

Estate of Dounreay	£396	8	9	
Estate of Murkle .	46	0	7	
	<hr/>			442 9 4

*Property March Fences.*

Estate of Dounreay				399 17 3
--------------------	--	--	--	----------

*Service Roads.*

Estate of Dounreay	£301	13	0½	
Estate of Murkle .	184	12	10½	
	<hr/>			486 5 11

*Farm Roads.*

Estate of Dounreay				238 17 2½
Carried forward . . . .	£22,412	4	10	

# 666 EXPENDITURE AND REVENUE OF IMPROVED LAND.

Brought forward . . . £22,412 4 10

## *Miscellaneous.*

Estate of Dounreay  
and Murkle 58 3 11

## *Flag Quarries.*

Dounreay Quarries	£2,431	2	7½	
Murkle Quarries .	727	7	11½	
Pavement Manu- factory . . .	903	11	11½	
				4,062 2 6½

Total amount from  
Whit Sunday,  
1859, to Martin-  
mas, 1864 . . . £26,532 11 3½

The above figures are taken from the reporter's accounts duly audited every half-year.

From the sum of £26,532 11s. 3¼d. has to be taken the amount received for pavement, &c., and the value of the pavement in stock, amounting in all to £2403 14s. 9½d., which leaves us the true amount expended, £24,128 16s. 6¼d.

The tenants pay an annual drainage rentcharge of £400 17s. at 6½ per cent., and £236 17s. at 5 per cent. These sums capitalised amount to £10,904 17s. 3½d., which, taken from £24,128 16s. 6¼d., leaves £13,223 19s. 2¼d. as the amount expended by the proprietor upon improvements not yielding

interest. The item £399 17s. 3d., under the head "Property March Fences," was not included in the estimate of £14,200, and therefore falls to be taken from £13,223 19s. 2 $\frac{3}{4}$ d., leaving £12,824 1s. 11 $\frac{3}{4}$ d., which taken from £14,200, shows a balance of £1375 18s. 0 $\frac{1}{2}$ d. in favour of the improvements.

In the course of carrying out the improvements, flag quarries have been discovered on both estates. They are now in good working order, and will be a source of revenue.

Thus 2000 acres of land have been added to the productive resources of the county in six years, and 500 more will be reclaimed before the present leases expire. The proprietor will profit largely at the next renewal of leases; but the whole country is also benefited by the example of extensive works thus boldly conceived and successfully executed. Mr. Tait concludes his interesting paper with the following general remarks:—

A question not unfrequently arises as to whether improvements should be undertaken by the proprietor single-handed, or in conjunction with a good class of tenantry. In ordinary circumstances the wise and profitable course is to make liberal arrangements with good tenants, and when such arrangements are made, they are, as a rule, zealously and faithfully carried out, with benefit to themselves and their proprietor. Judging from a well-paid rent-roll, the improvements reported upon are not only satisfactory to the proprietor, but also to the

tenantry who have been associated with him in their execution. And it gives the reporter much pleasure to be able to state that neither with tenant nor contractor has any misunderstanding arisen, during the six years the works have been in progress, but such as was amicably settled.

In concluding this report, attention may be directed to the drainage of the waste but highly-improvable land in Caithness. The value of the greater proportion of such land may be put down at 2s. 6d. per acre, and the drainage rentcharge payable by the tenant at 8s. per acre, making the rent 10s. 6d. per acre. In twenty-five years the principal and interest of the cost of draining may be cleared off. The land should then, at the lowest estimate, be worth 10s. 6d. per acre. It thus appears that such land increases four-fold in value in twenty-five years, without costing the proprietor more than a fractional amount of expense and trouble.

The reporter would suggest that a memorial from the landed proprietors of the county be presented to the Drainage Commissioners for England and Wales, setting forth the peculiar geological formation of the county, and the great capability of its soil for improvement, and crave a relaxation of their rule as to depth of drainage works. The minimum depth to be 18 inches, with the tile completely sunk in the rock at that depth. If this boon were granted, agriculture would take a fresh



start, and thousands of acres now lying in an unproductive condition would be brought to contribute to the wealth and prosperity of the county.

*Table showing the number of pipes, from 12 inches to 16 inches long, required to drain 1 acre of land, at 12 feet to 66 feet, or 4 rods, between the drains.*

Distance between the Drains.	No. of Rods on 1 Acre.	LENGTH OF PIPES.				
		12 inch.	13 inch.	14 inch.	15 inch.	16 inch.
		For 1 Rood, or $16\frac{1}{2}$ Feet.				
		$16\frac{1}{2}$	$15\frac{1}{4}$	$14\frac{1}{7}$	$13\frac{1}{5}$	$12\frac{3}{8}$
		For 1 Acre.				
12 feet	$220\frac{1}{5}$	3634	3358	3115	2907	2724
13 do.	203	3350	3095	2871	2680	2511
14 do.	$188\frac{1}{2}$	3110	2875	2666	2484	2332
15 do.	176	2904	2684	2499	2323	2178
16 do.	165	2723	2516	2334	2178	2042
$16\frac{1}{2}$ do.	160	2640	2440	2263	2113	1980
17 do.	$155\frac{1}{2}$	2565	2372	2205	2053	1934
18 do.	147	2425	2242	2079	1940	1820
19 do.	139	2293	2120	1966	1845	1720
20 do.	132	2178	2013	1867	1742	1633
21 do.	126	2079	1921	1782	1663	1559
22 do.	120	1980	1830	1697	1600	1485
23 do.	115	1898	1754	1626	1518	1423
24 do.	110	1815	1677	1556	1452	1361
25 do.	$105\frac{3}{4}$	1745	1613	1489	1395	1309
26 do.	$101\frac{1}{2}$	1675	1548	1435	1340	1256
27 do.	98	1617	1495	1386	1294	1213
28 do.	$94\frac{1}{4}$	1555	1437	1343	1244	1166
29 do.	91	1502	1388	1287	1202	1126
30 do.	88	1452	1342	1245	1162	1089
31 do.	85	1402	1296	1202	1122	1052
32 do.	$82\frac{3}{4}$	1365	1262	1170	1092	1024
33 do.	80	1320	1220	1132	1056	990
36 do.	$73\frac{1}{2}$	1213	1111	1040	970	910
40 do.	66	1089	1006	933	871	817
45 do.	59	974	900	834	779	730
$49\frac{1}{2}$ do.	$53\frac{1}{3}$	880	813	755	704	660
55 do.	48	792	732	679	634	594
60 do.	44	726	671	622	581	544
66 do.	40	660	610	566	528	495

No. of rods of 7 yards in an acre—when

4 yards apart . . . . .	170 rods
5 „ „ . . . . .	137 „
6 „ „ . . . . .	114 „
7 „ „ . . . . .	97 „
8 „ „ . . . . .	86 „
9 „ „ . . . . .	74 „
10 „ „ . . . . .	70 or 68 rods.

*To find any No.*—Divide 121 by the width between the drains, multiply the quotient by 40, the length of an acre, and divide the sum by 7 yards in a rod, and the quotient gives the rods in an acre.

To the reasons given, we must add the nature of the soil, if it be hard or soft for digging. The expense will range from £4 to £8 per acre, according as favourable or unfavourable circumstances may predominate—an average may be stated at £5 or £6 per acre, when the drains are six or seven yards apart, which width will drain all moderately wet lands. This estimate is confined within the hedges of the field to be drained—all exterior operations, as the cutting of open ditches and of water-courses, must be charged to the account of general expenditure.

We have in our “Hints on Farming” already said a good deal with reference to the effect of drains on the temperature of the soil; but as so many are sceptical, we add the following results as recently ascertained in a series of experiments and observations, and published in competition for the Marquis

of Tweeddale's prize of £80 offered for the best essay on the subject.

The temperature of hill pastures and arable land is raised by drainage, the contrary result being doubtless caused by the cooling effect of the larger evaporation from the undrained wet land.

The temperature of hill pastures was not raised by drainage to the same extent as that of the arable land. But the difference possibly arose from the nature of the soil in the two cases.

During sudden falls of temperature, and during protracted cold periods, as when the soil is under a covering of snow, the cold finds its way sooner and more completely through undrained than through drained land. For undrained land, having the interstices between its particles charged with water to a greater extent than drained land, is less porous, and therefore a better conductor of heat to the outer air; and hence its temperature falls more quickly when the temperature of the air has fallen below it.

When the temperature of the air is higher than that of the soil, drained land receives more benefit from the higher temperature than undrained land. The reason probably is, that the drained land—especially if in a state of cultivation—is more easily permeated by the air.

When rain or sleet has fallen, the superfluous moisture soon flows away from drained land. Hence, in such circumstances, drained land possesses the great advantage of a comparatively equable temperature; whereas the temperature of undrained

land is liable to considerable fluctuation ; for when soaked with warm rain-water it is temporarily raised, and when soaked with melted snow it is temporarily lowered.

Since, from the above causes, the temperature of drained land is in summer occasionally raised above undrained land to the extent of  $3.0^{\circ}$ , often  $2.0^{\circ}$ , and still more frequently  $1.5^{\circ}$ , it follows that the advantage derived from drainage is in many cases the same as if the land had been actually transported 100 or 150 miles southwards—and thus drainage must have the effect of altering the climate of a locality, and generally improving the climate of a country, by raising the temperature of the land.

The following statistics, relating to the rainfall during the year 1867, are taken from a gauge at Pentillie Castle, near Plymouth :—

Greatest fall in 24 hours.			
	Inches.	Inches.	Date.
January . .	7.55	1.91	5th
February . .	3.91	.76	9th
March . .	3.91	1.10	23rd
April . .	4.68	.81	29th
May . .	4.61	1.08	12th
June . .	.85	.27	4th
July . .	7.63	2.15	14th
August . .	1.77	.41	5th
September . .	2.47	.42	6th
October . .	5.91	.67	16th
November . .	2.52	2.03	30th
December . .	3.45	.93	1st
Total . .	50.19		

A prudent Agent, before he begins expensive improvements, will do well to carefully examine the wastes. The soil and sub-soil, and the situation of the springs, should be carefully ascertained by boring in different places to the depth of five or six feet. It will thus appear whether any portion can be readily converted into arable land, or improved as pasture, or whether plantations of trees may be safely made. The division of the waste into fields by deep ditches will often be sufficient to lay them dry ; if not, recourse must be had to draining. In the humid climate of Great Britain and Ireland, the water which falls in rains in the winter half of the year is always more than is necessary for healthy vegetation, and ditches are generally indispensable to keep the surface dry. The convenience of enclosures for pasturing cattle and sheep to advantage added to this, has made the division of wastes by ditches and banks an invariable preliminary to cultivation. Expensive draining may not always be expedient, where the soil is naturally poor ; but wherever there is sufficient loam, either immediately under the peat or mixed with it, and lime can be obtained at a moderate cost, the soil may always be brought into cultivation, and will fully repay any judicious outlay of capital.

In many situations on the slopes of hills, or in the valleys, good earth may be found at a moderate depth, which, being carted on the moor, will materially improve the surface. It should be carted



out in the beginning of winter, and spread over the surface an inch or two deep. It should be left so a considerable time, especially if there be any appearance of ochre or iron in the earth. The exposure to the air and rain will convert the hydrate or carbonate of iron into an oxide, and thus render it innoxious. The earth also will absorb fertilising portions of the atmosphere, and be much improved. It may then be ploughed in with a shallow furrow, and incorporated with the natural soil by harrowing. A small quantity of lime and manure will bring this mixture into a productive state.

There are many moors which, although incapable of profitable improvement as arable land, may, at a comparatively small expense, be much improved as pasture for sheep and cattle. The principal means of effecting this, are judicious draining by ditches, and enclosing the fields with banks or stone walls, both as shelter for the stock and convenience of feeding. The heath may be burnt and the ashes spread about, and the surface having been scarified to the depth of a few inches, some grass-seeds, suited to the soil and climate, may be sown. The surface will soon show a manifest change by the increase of green patches, and a subsequent liming will complete the improvement. When the health of the stock, as well as the increase of food, is taken into account, it will be found that such an improvement of moor-land soon repays the outlay.

When the surface of the ground is very uneven,

with protruding rocks, interspersed with large stones, the only improvement which can be undertaken is to plant trees, chiefly of the fir or pine tribe, which will grow well if put in judiciously. The plants should be of the last year only, and the ground where they are to be planted should be well examined to find out whether there is a moor-band or rock below. The first must be broken through, which may be done by trenching, or by means of heavy-pointed iron bars thrust into the ground with considerable force wherever a plant is put in. If there is a rock below with six inches of earth over it, provided it be not of a very compact and solid nature, the fir-trees will grow rapidly, and the roots will find crevices to strike into. A plantation should begin in a sheltered spot, and it may be enlarged every year towards the more exposed side. Thus, even the highest and bleakest hills may in time be covered with wood, and, if properly managed, cannot fail to be profitable.

The certain cost and probable improvement must be well calculated and compared to avoid disappointment and loss. As these depend on the peculiar circumstances of each case, it is impossible to give any general idea of them. But, by beginning on a small and experimental scale at first, and proceeding cautiously, new modes of lessening the expense of many of the operations will be suggested, errors will be avoided, and some certain practical ground of calculation will be obtained.

That there is great pleasure in the pursuit, no one can doubt, who sees at what expense favourite barren spots are improved; and a scanty harvest on land created, as it were, by art, pleases the proprietor more than the most abundant harvest which his richest lands can produce.

Many a fortune, no doubt, has been impaired by rash speculations and too sanguine hopes; but, without this spirit of improvement, few soils, except the very richest, would ever have been cultivated, until the wants of a population greater than the richest lands could feed, had forced the cultivation of those of inferior quality. It is in the tillage of very poor soils, chiefly, that those improvements in the implements and operations of husbandry have been suggested and invented, without which a great portion of the soil of the British dominions, and of a considerable part of Europe, could never be cultivated to any advantage, much less made to afford rent to a proprietor, or contribute to the expenses of the nation.

The unproductive state of waste lands in many populous countries, has suggested the employment of the poor and friendless on their improvement; and it has been thought a more enlightened charity to expend the money, which would otherwise be given in simple temporary relief, in such a manner as to make the labour of paupers available to their future comfort and independence. In some places portions of land have been given absolutely, or at a

nominal rent, to paupers, in order that they might cultivate and gradually improve them; and, where the soil is naturally good, and requires only to be worked and tilled, the plan has been attended with great success. But, where a barren waste can only be improved by artificial manures and expensive operations, it is folly to expect this to be done by labour alone, without the aid of considerable capital; and neither the judicious managers of public funds, nor prudent speculators on their own account, will venture to lay out much capital on a speculation which rests on the hope, that a naturally indolent and idle class of men shall make it productive, either to themselves or to those who have advanced the necessary funds.

The establishment of a pauper colony at Frederiksoord, in the Province of Drenthe in Holland, noticed by Mr. Jacobs, and of which a short account may be found in the "Companion to the Almanac," seems to contradict this opinion; but, until we shall have a little longer experience of the working of the plan, we cannot consider this experiment as decisive. The colony must necessarily increase the population, which is already redundant, and may, in the end, produce a seminary of paupers.

A portion of good land, let at a fair rent to a poor tenant, with a little pecuniary assistance at first in the purchase of a cow or pigs, and provisions, until the land produces food for the family, such assistance to be repaid by instalments, will occasion much

less expense, and will in general be attended with less loss and fewer casualties, than the improvement of poor sands and heaths, however judicious may be the management; and the ground converted into a garden, will increase much more rapidly in value, than an equal quantity, originally worth nothing, can ever be made to do, by three times the labour bestowed. Let the rich, then, be the improvers of wastes, and the poor lay out their surplus labour on more grateful soils.

Amongst the many schemes and projects submitted to public favour, we hail with delight the Land Credit Companies; and we would recommend every Land Agent in this country to peruse a most able pamphlet on the subject by Mr. Henriques, published by Mr. Effingham Wilson. We gather from this pamphlet that public joint-stock companies, seeking to employ their capital and funds in making advances, by way of mortgage, on the security of land, or intending to purchase land with the view to subsequent sale, or desiring to promote land cultivation by aiding improvements, &c., on the land, have been established for Australia and New Zealand, for some of the South-African colonies, and also for India. More recently Land Credit Companies have been established for England and Ireland.

All these companies have for their model the *Credit Foncier de France*, the very great success of



which has, no doubt, stimulated and induced the establishment of kindred institutions.

It is alleged by the *Credit Foncier de France* that, by means of their bonds, they have solved the long-vexed question of giving currency to land ; that the facility of obtaining, on the security of land, a negotiable instrument bearing interest, and transferable from hand to hand, has given to land the advantages usually believed to be exclusively possessed by moveable and personal property. Money, it is contended, is no longer locked up in investments in land, inasmuch as a mortgage effected by a landowner with a Land Credit Company, coupled with an issue by the company of land-bonds readily turned into money, insures that “play” of capital which financiers hold to be essential to its profitable employment.

If we consider the bonds and debentures of a Land Credit Company as possessing all the essential characters and qualities of security which can be obtained by means of a mortgage of land, it is not too much to assume that ultimately they will be most favourably regarded by the investing public. The investment of money on the security of land has always been largely practised and highly esteemed by the more cautious class of investors. Investment powers in settlements, even of the narrowest kind, invariably contemplate the investment of the trust funds on the security of land ; and the most careful and timid trustees rarely object to this description of investment. The bonds

and debentures of Land Credit Companies, when these securities are better known and understood, will probably (when sufficient powers shall have been conferred by settlements) attract a large amount of trust money; for they will offer to the investor high security, regular and prompt payment of annual interest, absence of expense on investment, and great facility of re-conversion into money. Among the many advantages to the investor must also be included the vast additional security to be derived from the large subscribed but unpaid capital of the Land Credit Company issuing the bonds.

The technical doctrines of law, and costly methods of selling land, or of obtaining loans by way of mortgage on it, have undoubtedly damaged its value, as well as its convenience to the holder. A proprietor of funds, stocks, or shares, if he be in want of ready money, may obtain it without difficulty from his bankers, or other recognized sources, in an ordinary way of business; or he may sell, without delay, and in an open market, a portion of his property, and so obtain what he desires. Not so with a landowner; if he require an advance of money (except in the case of that anomalous transaction, an equitable mortgage), he must take all the steps of an actual sale, and submit his titles to all its vexatious and expensive investigations. A mortgage is, in fact, a conditional sale; and, at law, the

mortgagor wholly parts with his property to the mortgagee on completion of his mortgage.

A great difficulty, also, under which a landowner labours, is the limited means he possesses of making known his desire to borrow money on the security of his estate. It has been well said in a recent article on this subject that, "in all civilized communities there are, of necessity, both borrowers and lenders of money. The extent of the borrowings and lendings of money on land must be very great; and it is at least remarkable that, hitherto in this country, there has not been any recognized medium through which it can be transacted."

The true functions of a Land Credit Company are two-fold and reciprocal between the landowner and the capitalist; for the landowner should be aided and assisted in obtaining advances on mortgage of his estate, and the capitalist should have facilities afforded to him in the investment of his money upon the security of land.

One of the great drawbacks to the improvement of this country is the system of entails. Doubtless recent changes have gone far to lessen the evil, yet, as the law stands even now, it is still one of the greatest obstacles to the amelioration of the land. Indeed, in travelling through the country, one could readily distinguish whether an estate was entailed or not by the condition in which, in the former case, it was allowed to remain. In the districts where destitution was felt, especially in Scotland, the dis-

tress of the people was greatly aggravated by the circumstance that the proprietors were so tied up that they could not raise money to expend amongst the poor. The Entail Act of 1685 was the last effort of an expiring feudalism, and was denounced among the grievances of which a list was sent up to William and Mary on their accession. Half a century later the same sentiments were strongly expressed. Even at the present day, our law of entail operates injuriously, not only on heirs of entail and their families, but on the whole structure of society. The highest legal authorities have condemned the system, and we believe that there is not a single person of any consideration and intelligence, who is not convinced that it is futile to expect any real regeneration of the country from all the efforts of Government or individuals, until such a radical and complete change in these laws shall have taken place as will enable land to be transferred with freedom and convenience. No doubt entails can be broken in Scotland with the concurrence of the two next immediate heirs; but at what cost to the present proprietor? Why, something enormous—the first and second heirs usually demanding most exorbitant sums for their acquiescence.

Early in January last Professor Fawcett, M.P., delivered a lecture at St. James's Hall, in which he said that we were too much accustomed in this country to think that our landed system was like that which existed in other parts of the world. We

had landowners, farmers, and labourers. In the United States land was so cheap that no one ever thought of renting it. There, and in our colonies, land was so cheap, and the wages of labour so high, that with ordinary thrift a labourer soon acquired a considerable estate. Then look at the Continent. In Prussia, owing to the reform carried on at the close of the last century by Baron Stein and others, the serfs were converted into peasant proprietors, who were loyal and contented, and who cherished the institutions of the country because they had a stake in the country. Whether they went to Belgium, to Flanders, to Prussia, or to Lombardy, they would find that where the land was cultivated by peasant proprietors a much greater amount of happiness was attained than was attained in our own country. The economic results of the system in this country were disastrous. If a man were a good farmer, he had no prospect but that at the end of his term his rent would be raised according to the additional value of the land. Then the agricultural labourer was listless, because he had no interest in good cultivation. Contrast this with the energy of the peasant proprietors on the Continent. We had had some experience of this in our own country. The yeomen of England were always the friends of freedom, and it was from that class that the illustrious Cromwell drew his Ironsides. They had been swept away; their small estates had been merged in the estates of the great proprietors. And



not only that, but the common rights of the peasantry had been swept away too. Now, he did not wish to restore the former state of things by any illegal means. If causes were in operation that caused the aggregation of land in large masses they must allow those causes to operate. But what he said was, that that state of things did not lead to the happiness of the people, and if it was found that this aggregation was caused by laws, they must alter those laws. This aggregation was simply due to two causes—the law of primogeniture and the power of entail. If a man died possessed of railway shares or money in the funds the law said it should be divided among his children, but if his property were in land it all must go to his eldest son. They might say a man might make a will, but the fact was that this law produced a powerful indirect effect in keeping up the custom of primogeniture, and if something better than they had yet heard could not be urged in its defence, he hoped that the people, now that they had popular rights, would demand its abrogation.

The custom of primogeniture is the custom of “making an eldest son,” that is a son, chief by position, as older by birth, and it is so English, so ancient, so patriarchal, so deep-rooted in our whole system, through every gradation of rank, every institution for government and administration, and so entirely in harmony with the national character, that we cannot think it short of ridiculous to refer

it to any one particular law. In this country custom is the real parent of law. The Legislature does but perform the humble office of making laws in accordance with the habits and genius of the people. There certainly is a custom of primogeniture, and there is an immense variety of institutions and laws arising out of the custom, and designed to assist and carry it out. This is done with a gentle and permissive hand, and, indeed, so moderately that in the great majority of cases law does not affect the devolution of property one way or the other. But Mr. Fawcett's political authorities will tell him something else bearing on the subject, and showing that some very ordinary considerations have to do with the distinctions made between real and personal property. It is much easier to divide personal than real property. Unless an arrangement can be made, which is in many instances out of the question, it would often be impossible to divide real property without a sale, and its consequent alienation from the family altogether. Under the supposition of intestacy, the law would have to realize and divide what is often in its nature indivisible, with the certainty that in so doing it went against the strong wishes of the intestate. As the Professor declares that he said little more than Adam Smith said about the power of entail, we hope he took care to inform his hearers that the law of entail has been considerably modified since the days of Adam Smith, and that it pulls both ways, sometimes sus-

taining the existing aggregations of real property, but very often also impeding and even preventing larger aggregations.

The *Economist* puts it to Professor Fawcett to explain how free trade in land would produce, or even favour, peasant-proprietorship. The phrase is badly chosen, for true free trade in land would allow of perpetual entails, or the conversion of Belgravia into a deer forest; and is, for all the purposes politicians are bound to consider, a mere dream, which can never be realised except in the desert. Land being at once a necessity and a monopoly, ownership can never be absolute. The Professor means, of course, not this; but so easy a mode of arranging the purchase or sale of land as to make it as transferable as sugar or coal, or any other article of commerce. Well, even to secure this we shall have to do a good deal; to abolish primogeniture, and with it, ultimately, the peerage; to forbid settlement, and with the greater part or the whole of our vast system of "trusts," and to make the owner of every description absolute proprietor in fee. Let us suppose, however, these immense changes made, and then how shall we stand? The two or three persons who now own the parish of Greenfield, and who at present would have much difficulty in selling the fee-simple, would then have no difficulty—doubtless, *pro tanto*, a great advantage. But the point for the advocates of peasant proprietorship to settle is, who would be the purchasers? The

attraction of the capitalist to the land would be very little diminished by all these changes—might even be greatly increased. Free trade would indefinitely increase the security of his investment, by removing all difficulties about title; by enabling him to grant any kind of lease he pleased, whether wasteful or not, and by facilitating sale whenever he wanted his money, or part of his money, back again. Free trade, again, would in no sense diminish the second attraction of ownership, the fact that it is the only business which can be carried on successfully by men who love leisure, who enjoy the open air, and who are weary or impatient of the life of cities. And it would directly and decidedly increase the social dignity attaching to land, for it would kill out the poor but ancient county families, with mortgaged estates, leaving the great landowner the only person visible, without personal merit, above the mass. Moreover, the great land buyers do not buy land with a view to high interest, but with a view to security, position, and ease, and will accept returns which would starve the peasaut, even with the advantage of spade labour. Land might be raised in price, doubtless would be, but the richest would get it, just as in open market they get everything else. It may be asked—Why on the Continent is not land more accumulated? but the reply is simply—Any millionaire who tries can, and does, accumulate it, even in France; but very few try, because on the

Continent the passion of the rich is for the highly developed, exciting, hothouse life of cities, and social position is fixed not by ownership, but by birth or rank in the service of the State. In England, the result of "free trade in land" would be, as in ancient Italy, to place whole divisions of counties in the hands of individuals and suppress small ownerships altogether.

The argument of Mr. Fawcett appears to stand thus :—

Every system is an evil which prevents land coming into the market for sale.

Entails prevent land coming into the market for sale.

Therefore, the system of entails is an evil.

Now, we think it would be well if some proof were given of the second, or minor proposition. We venture to deny the accuracy of it. Speaking from a considerable experience, we think it would be found that (excluding mansion-houses and demesnes) there are not five acres in a hundred of the entailed lands in this country which are not saleable. Whatever was the case in the time of Adam Smith, almost every will and settlement at the present day which entails land in settlement gives a power of sale. If, then, any increase in value of the land, any necessity for paying off encumbrances, or any other circumstance, renders a sale desirable, a sale can take place. It is no answer to this to say that the purchase money must



be reinvested in land, to be settled in the same way. This merely makes those who sell competitors in the market for other land, which is again to be entailed, and may again be sold in its turn. To this no sound political economist could object.

As to the 5 per cent. of entailed land which we have supposed to be unsaleable from want of a power to sell in the entail, the Court of Chancery can, if there be any good reason for selling the land, confer a power, at a very moderate expense, under the Sales of Settled Estates Act.

For the alteration of the law of primogeniture Mr. Fawcett's argument may be thus stated:—

1. It is desirable that the land of the country should be owned in small parcels, and not in large.

2. Settlements and wills in favour of eldest sons promote a system of ownership of land in large parcels.

3. The devolution of land in cases of intestacy to an eldest son (in other words, the law of primogeniture) encourages settlements and wills in favour of eldest sons.

4. Therefore, the law of primogeniture should be abolished.

We wish to point out that the principal proposition in this argument is the first, and yet in support of this not a word has been said. It is a question which requires deep, comprehensive, and exhaustive treatment, and it is simply assumed. It is a question much too great to discuss here. Many

persons think that the subdivision of land into small holdings is not good either for the land or for its owners. Many persons think that the *morcellement* of land in France has not improved the productiveness of the land or the national character of the landowners. Many persons would agree with Sir Matthew Hale, who, speaking of an early English tenure which led to a division of land among all the sons of a family, says—

It weakened the strength of the kingdom, for, by frequent parcelling and subdividing of inheritances, in process of time they became so divided and crumbled that there were few persons of able estates left to undergo public charges or offices. Secondly, it did by degrees bring the inhabitants to a low kind of country living, and families were broken; and the younger sons, which, had they not had these little parcels of land to apply themselves to, would have betaken themselves to trades, or to military or civil or ecclesiastical employment, neglecting those opportunities, wholly applied themselves to these small divisions of land, whereby they neglected the opportunities of greater advantage of enriching themselves and the kingdom.

But, however this may be, we would venture to suggest that this is the point which those who contend that the law of primogeniture ought to be altered have to address themselves to—namely, to show that the custom which keeps a family estate in an eldest son, and encourages younger sons to

labour in commerce and professions, has wrought, and is working, evil in this country in a national, social, and economical point of view.

We cannot avoid thinking that the somewhat unusual manner in which the argument for these changes is put forward evinces an anxiety to keep in the background one result which the abolition of entails and of the custom of primogeniture clearly would have,—that is, to put an end in this country to the class of gentry or aristocracy, titled or untitled, connected with land. Some persons might think this would be an advantage. But we most decidedly think it would be a very great disadvantage.

Proposition submitted by Mr. Hayes, conveyancing counsel of the Court of Chancery :—

1. Neither in this island, nor in Ireland (the laws of both islands being, so far, identical) does the law allow of what is popularly understood by a strict entail—*i.e.*, a condition of inalienability.

2. The law *does* allow land to be settled on persons in being and their unborn issue, within judicially defined limits.

3. Such settlements may be effected without the creation of any entail whatever, and do, in fact, exist to a great extent and amount, quite irrespectively of the law of entail.

4. Whatever may be done, as respects settlement with land, with or without the aid of entail, may be equally done with personalty, and, in point of fact,

a very large amount of funded property is at all times held in settlement, not merely as settled personality, but virtually as *entailed land*.

5. As the power of the Legislature is supreme, land may be, and certain estates actually are (some on grounds of national policy, as Blenheim and Strathfieldsaye, others on grounds less obvious, as Arundel and Alton Towers), inalienably settled, until unfettered by the same paramount power; but these, though large in value, are very few in number.

6. With the exception of the last-mentioned estates, the settled lands of the kingdom might be brought into the market to-morrow, were it thought desirable to sell them. This might be effected, in the great majority of cases, by simply exercising the powers contained in all well-drawn settlements, and in the comparatively few exceptional cases, through the medium of the Court of Chancery under Lord Cranworth's Acts for facilitating the leasing and selling of settled estates.

7. The *legitimate* facilities for converting settled personality, if not less, are hardly greater than those which exist in regard to settled land, though, unfortunately, in the instance, at least, of funded property, the market may be more readily supplied by *breaches of trust*.

8. Therefore, when a settled estate is not actually in the market, the almost necessary explanation is that there is not any occasion or desire to sell it, the

like reason accounting for the retention of a family picture or cabinet.

9. As respects the settlement, whether of land or money, there is not any privileged or peculiar class or kind of persons or things ; whatever may be done by a peer, with his vast territorial or movable wealth, may be equally done by the meanest subject of the realm with his single perch of land or chest of drawers, and, in point of fact, our law of settlement is so widely used as to permeate our whole social system, and to prove at least its claim to qualities fitting it for general acceptance.

10. The necessary inference from the foregoing propositions is that the law of settlement, if now to be recast, must be considered with reference to personality, as well as realty, to every species of wealth ; and that what is commonly treated as the *land* question is really, in its full breadth and intimate relations, the *property* question and the *social* question, and cannot be narrowed and confined to the *soil* without producing the most incongruous and anomalous results.

11. The authority of Adam Smith, however deservedly great, should not be cited without the qualifying ingredient that he wrote at a period when there existed in Scotland entails peculiarly strict, and when there did *not* exist in England the facilities now enjoyed for the alienation of settled estates.

12. As regards descent by primogeniture, ope-



rating only in the rare cases of intestacy, and not in such cases operating as to the immense mass of *leasehold* property in London and elsewhere, there is not any reasonable ground for assuming that, if the succession to realty and personalty were assimilated, settlement, as regards land, would be sensibly influenced, unless, indeed, that great land-owners in fee, anxious to aggrandize the elder line, would be the less disposed to die without settlement or will. By the general custom of Kent primogeniture as to lands not disgavelled does not prevail; yet probably it would be found that Kentish land-owners foster, in an equal degree, those tastes which, by the abolition of primogeniture, it is sought to extinguish.

13. As existing settlements by deed and will, by way of entail and otherwise, are innumerable and embrace a vast amount of property (land and money), it must be considered whether these—all marriage contracts, and other contracts for value of that nature—are to be disturbed in order that the present generation, or at least the next, may profit by the change, or whether the land market (assuming it to be impoverished by such settlements) is to remain for an indefinite period inadequately supplied.

Whether the law of settlement, as it now exists, is based on broad and sound principles of policy; whether its limits require, for the general good, to be readjusted; whether all ownerships should be

simply absolute; whether the land should be parcelled in small inalienable holdings, incapable of reunion in masses, to which result, though the very contradiction of the free-trade principle, some of Mr. Mill's suggestions would seem to point,—these and the like questions are matters fairly and fitly open to be canvassed by jurists and philosophers; but they will be discussed in vain unless a more accurate knowledge of the law, in its actual state, and viewed with reference only to the *facts* which constitute it, and which cannot be gainsaid, be brought to the discussion; while, certainly, nothing can be more demonstrable than that the entire abrogation of entail and primogeniture, without more, would be a measure absolutely impotent to realize any of the prevalent theories as to “free-trade in land”—theories concerning which it is not meant here to express any opinion.

Lord Bacon, in adverting to the statute of Edward I., remarks :—“It hindered men who had entailed lands that they could not make the most of them by fine and improvement; because none, upon so uncertain an estate as for the term of his own life, would give him a fine of any value, or lay any great stock upon the land that might yield rent, improved.”

Adam Smith, after giving a history of entails and primogeniture, and condemning them in strong terms, adds :—“To improve land with profit, like all other commercial projects, requires an exact

attention to small savings and gains, of which a man born to great fortune, even though naturally frugal, is very seldom capable. The situation of such a person naturally disposes him to attend rather to ornament, which pleases his fancy, than to profit, for which he has so little occasion. The elegance of his dress, of his equipage, of his house and household furniture, are objects which from his infancy he has been accustomed to have some anxiety about. The turn of his mind, which this habit naturally forms, follows him when he comes to think of the improvement of land. He embellishes, perhaps, four or five hundred acres in the neighbourhood of his house, at ten times the expense which the land is worth after all his improvements, and finds that if he were to improve his whole estate in the same manner—and he has little taste for any other—he would be a bankrupt before he had finished the tenth part of it. There still remain in both parts of the United Kingdom, some great estates which have continued without interruption in the hands of the same family since the times of feudal anarchy. Compare the present condition of these estates with the possessions of the small proprietors in their neighbourhood, and you will require no other argument to convince you how unfavourable such extensive properties are to improvement.”—*Wealth of Nations*, vol. i, p. 153.

Lord Kames states:—“A man who has amassed a great estate in land is miserable at the prospect

of being obliged to quit his hold; to soothe his diseased fancy he makes a deed, securing it for ever to certain heirs, who must without end bear his name and preserve his estate entire. Death, it is true, must at last separate him from his idol. It is some consolation, however, that his will governs and gives law to every subsequent proprietor. How repugnant to the frail state of man are such swollen conceptions! Upon these, however, are founded entails, which have prevailed in many parts of the world, and unhappily at this day infest Scotland. Did entails produce no other mischief but the gratification of a distempered appetite, they might be endured, although far from deserving approbation; but, like other transgressions of nature and reason, they are productive of much mischief, not only to commerce, but to the very heirs for whose sake alone it is pretended they were made.”—*Appendix to the 4th vol. of “The Sketches of the History of Man.”*

The eminent ex-finance minister of India, the Hon. Samuel Laing, M.P., in his “Notes of a Traveller,” when speaking of the law of equal division in succession in operation in France, which the *Edinburgh Review* (for 1823, on the “French Law of Succession”) predicted would turn that country into “a great pauper warren,” says:—“France owes her present prosperity and rising industry to this very system of subdivision of property, which allows no man to live in idleness, and no capital to be

employed without a view to its reproduction, and places that great instrument of industry and well-being in the hands of all classes. The same area of arable ground, according to Dupin, feeds now a population greater by eight millions, and certainly in greater abundance and comfort than under the former system of succession. In this view, the comparison between the old feudal construction of society in France and the new, under the present law of succession, resolves itself into this result—that one-third more people are supported under the new in greater abundance and comfort from the same extent of arable land. . . . Minute labour on small portions of arable land gives, evidently, in equal soils and climates a superior productiveness where these small portions belong, in property, as in Flanders, Holland, Friesland, and Ditchmarsh, in Holstein, to the farmer. It is not pretended by our agricultural writers that our large farmers, even in Berwickshire, Roxburghshire, or the Lothians, approach to the garden-like cultivation, attention to manures, drainage, and clear state of land, or in productiveness from a small space of soil not originally rich, which distinguish the small farmers of Flanders and their system.”

So much from the author of these interesting and able notes, whose views are at all times, on this or any other subject, well worth attention. . We may add that Guernsey contains five times as many inhabitants to the square mile as Ireland does,



while the soil is naturally less fertile, and only two-thirds of it can be cultivated. It supports a population, with reference to her soil, nearly five times as numerous as that of Ireland, and every Guernsey man has a comfortable home to live in, a clean bed to sleep in, and plenty to eat and drink every day in the year. Moreover, a beggar is seldom, if ever, seen there. And how comes this? Simply because the same causes operate there which, according to The Hon. S. Laing, M.P., operate in France.

The important question—the land laws of England in their influence on agriculture—was lately the subject of an able and elaborate paper by Mr. C. W. Hoskyns before the Midland Farmers' Club. A short account of the origin and derivation of the land laws of this country introduces the three principally treated of—primogeniture, entail, and conveyancing practice. The law of primogeniture is shown to be a direct contradiction to the law of inheritance, as relating to every other description of property; and it is argued that the existence of these two laws of succession has been the cause of endless litigation.

It is hardly possible to convey an idea of the everlasting stream—I should say whirlpool—of litigation that has been occasioned in our courts of law and equity by this unnatural wabble of two systems so diametrically opposed to each other, yet operating simultaneously in the same country. It furnishes the key-note, the underlying cause that

long rendered our Court of Chancery a scandal, not to this country only, but almost to the civilised world. The disputes between the heir-at-law and the personal representative, the respective champions of the two interests—the two conflicting systems—if recorded, would surpass belief.

It is perfectly right—and we trust the time may never come when that right shall be invaded—for a man to dispose of his property in any way he thinks proper, to convey it all to one child, or to divide it in any proportion; but it is not well for the law to speak in two voices. Individuals should be free agents, but the law should be consistent with itself; and a rule of right.

*Law and Custom* must not be confounded; the one may be bad, the other frequently a desirable arrangement. Mr. Hoskyns considers that the effect of primogeniture is visible in the increased area of large estates, and the dying out of small proprietors. One hundred and fifty years ago, we are told on good authority, that 160,000 families, making more than a seventh of the whole population, derived their subsistence from small freehold estates. The concentration of land may be gathered from this fact, that the total landowners at the present time barely exceeds the number of small proprietors then. These facts are indisputable; but we are not so clear as to the cause. The law may be responsible for a part, but not the whole. Numbers of these proprietors found themselves at

the close of the war impoverished, were driven into the market, and their land became absorbed into large estates. The consequence is that we have tenant farmers instead of yeomen proprietors ; and in the hands of which class is most produced ? Mr. Hoskyns strives to show that cultivation must suffer, since the inducement to improve depends so much upon tenure. His arguments are hardly borne out by facts. The small proprietor is too often straitened for money, whereas the large tenant brings a sufficient sum to work the farm to the greatest advantage, and, enjoying either the security of a lease or confidence in his landlord, endeavours to make the most of his land. At any rate, the higher-farmed districts of England, occupied by wealthy tenants, will bear comparison with any estates farmed by the proprietors that we have ever seen. A comparison is attempted between the owner spending a larger sum in planting half an acre of orchard than a tenant would feel justified in doing on a thirty-acre wheatfield. Very true ; but this difference is due to the fact that such outlay would not pay. The tenant applies as much manure as experience justifies, and reaps the fruit in an increased crop. Nor can we quite agree that the result of improved machinery has materially reduced manual labour. Mr. Hoskyns instances the steam plough, yet we much doubt if the use of such machinery has had this effect. Our inquiries over a considerable area lead us to an opposite

conclusion. Why have small farms, as well as small properties, given place to larger ones? Because the condition of things rendered them less profitable. For all these reasons we cannot believe that the enlargement of farms, and the introduction thereby of a more intelligent and wealthy tenantry, socially quite as important as the small proprietors spoken of by Macaulay, has been injurious to the progress of agriculture, but quite the reverse. The injury that does not unfrequently result is this. The law of primogeniture prevents a proper provision for the rest of the family, and the heir is crippled with annuities and allowances, which leaves him sadly embarrassed and unable to lay out the capital required to maintain and improve the estate. To remedy this evil, the Government loans were first granted, and now the Lands Improvement Companies, subject to the approval of the Inclosure Commissioners, are empowered to lend money for works of a permanent character. Supposing the borrowing of money on such terms is not desirable, the owner is even then not without resources; he can find tenants who, secured by a long lease, and proportionately rented, are willing to embark capital that should, under ordinary circumstances, come out of the landlord's pocket. Whilst we cannot agree with Mr. Hoskyns in the conclusions he believes deducible from the action of the law, we heartily coincide with the principle he lays down, that primogeniture, all very well as a

time-honoured custom, is altogether out of place as law, and we trust the day is near at hand when it will exist only under the former condition.

The *Law of Settlement*, as defined by Mr. Kay, enables an owner to grant by deed, or leave by will, different interests in his land to a number of persons, and so to arrange the succession to it, that no person shall be able to part with any portion of it until some one who was an infant at the time of making the settlement has grown up, married, and had a son, and until that son has attained the age of twenty-one years, and not even then unless all those who have any prior interest in the land are dead, or join in the sale. Mr. Hoskyns supposes the case of a father making a settlement a year after his son's marriage, and on the birth of a child giving a life estate to his son and grandson just born, with remainder to that grandson's child; it is clear that the property is tied up for a period varying from 50 to 70 years. As each successor comes of age the process is repeated. The objection appears to be in the words *and twenty-one years afterwards*. The owner's hands are thus completely tied; he cannot improve as he would, because all he lays out must finally benefit the heir, at the expense of the rest of the family. A supposed case is given:—

*Tenant*: Sir, the outlay of a couple of thousand upon my farm will greatly improve your property, and I will gladly pay you 10 per cent. for it.



*Landlord:* Sir, my estate furnishes me with income, not capital. I have no money to spend in buying annuities, for such in effect is your proposal, which bids me, for the sake of 10 per cent. to myself for life, add to the fortune of my best-provided child at the expense of those that are penniless.

The evils that frequently attend the keeping up an overgrown property by the borrowing of money, rather than by the more legitimate and reasonable process of selling off a portion sufficient to defray the charges and place the owner in a prosperous condition, are pointed out by Mr. Hoskyns with happy perspicuity; and the conclusion arrived at is that the power of entail should be shortened to the European standard—viz., of lives existing at the time of making the settlement, accompanied by a power of sale, to the extent of the incumbrance, by the trustees of the settlement. Such power would do more than drainage loans for the improvement of estates, and throw open the land market to new blood and free capital. These would be very serious changes, and their contemplation at first sight is rather alarming; but we cannot doubt the necessity for a considerable alteration. The great point is to establish free trade in land, by removing the Law of Primogeniture and lessening the period of entail.

*Conveyancing Practice* may be described as the parchment cancer which ruins the health and saps the strength, feeding upon resources that otherwise

would be devoted to the improvement of estates. If, as is well put, the same expense attended the transactions of trade, the incubus would be intolerable, and commerce must languish. Lord Brougham, like some of his successors, worked hard at land law reform, feeling the justice of Blackstone's dictum, "That to increase the facility of the transfer of land must ever be the great end of the lawgiver in all his plans for amending this great branch of jurisprudence." He undoubtedly made a great stride by his Twenty Years' Title Act, but left five loopholes for litigation, which have furnished so fruitful a source of strife that inheritors prefer having recourse to conveyancers, and thus this otherwise wise measure has proved practically of little value. The exceptions in question were "infancy," "duresse," "beyond seas," "lunacy," and "*ventre sa mère*." Thus the law laid down that twenty years' undisputed possession should establish a title, but not if the adverse claimant was under age, in prison, beyond seas, mad, or unborn. Who might not dispute your right to possession? And who dared run such a risk? So the lawyers got their way, and parchment triumphed. Mr. Hoskyns advocates what has been so often considered desirable, the public and compulsory registration of titles. This has always been opposed on account of the disclosures it necessitates—secrets that are now buried in the bosom of the family lawyer, who takes care of them for a weighty consideration. It would be of

immense service if the transfer of land could be proceeded with on the same system as articles of commerce. Wherever a register and map is in operation, as in many parts of Germany, land is sold almost as readily as calico. On questions such as these the parties most interested are not so well qualified to legislate as will be those who are not under the trammels of custom, and who, themselves possible customers, will be anxious to remove all unnecessary restrictions. The new House of Commons, for example, may be expected to discuss these and many other questions; and we look forward to reform and progress.

The conclusions with which Mr. Hoskyns terminated his admirable paper may be briefly summed up. The *custom* of primogeniture to be left alone; entail restricted to the living; giving the utmost latitude to the will of the owner, consistent with the *rights of the generation yet unborn*; and, lastly, an open land market—how best arrived at Mr. Hoskyns does not venture to say—but that it is the most serious reform of all few will doubt who know anything of the heavy charges on property connected with title and transfer.—*Field*.

We think that, upon the whole, the peasantry of Scotland are much better educated than the same class in England. As an amusing and characteristic specimen, however, of a Highland shepherd's letter, the following can hardly be excelled. It was written in reply to the following advertisement, which appeared in the *Inverness Courier*:—

“ TO SHEPHERDS.—Wanted, a Pure-bred Sheep-Dog. State colour and price, free on board a London Steamer, to Mr. D. G. F. Macdonald, Sydenham.”

“ Gairloch, Rosshire, Scotland.

“ Honorable Sir,—I seed in Friday last, *Inverness Courier*, a advertismont, for pure breed sheps Dog, i vrite your Honor to telt you, that I have exselent one Bred of Pure Blod, 7 munthus of agee; Him have bone and rib, more stronger than any i ever yet did seed; and He as wise as womans or a man. By half a words of command he will go of 1000 yards, and take any number of sheps to my heil; and Him understood anythings you say to him by sins, like Dumy. Him colour Black on the Backe to near end of taile, Him then whit; Him hind legs at point whit, one of four feets whit, other Black: Him whit under Bely, and sume of the same under muzzlee; Bit of him's nose whit like half Moon. Him coreus colour, Buts god Dog never have bad colour: him ears Black, stand up when hear sound, like ears of Fox. One of ears have whit spottee near head size of peny; Him eyse whit Broun, will see as fare as Hake or Eagle; and him skinn as fine as Backe of Lady hand. Him was Breed me myself, and I did kep it from Mothers womb, and Him got plenty of Mothers mulk when whelpe. Hims name be sprat, called efter the yong Heringes, cause him be so madd in love of them to

eatee we smashed Tatoes; him not shentle in him Bely, will eatee onything: Plenty good Shepherds says him is god enogh for Princee Halbert, as Him as pure Breed as most Graceous our Queen of Balmoral: Him price, free on board steamer for London, in England, is 37 shiling, to be paid thrugh Bank of Calidonia at Dingwall Rosshire, Scotland, north Brutton: or through Mr. William Mackenzie, Gairloch, Rosshire, Scotland, north Brutton. Him will larn anything, he so wise, and from what i knowed of your Honor, and of your freends, i would rether you have it in your posesion than any other Shentleman alive: as i as fond of him as of my Childers or Wife; Dog will be time before he get over the Galick, his Mother and Father tong, and learn the Englishers lanage: but as him act Dumy i tell you the sins, ans you can yourself put lanage to them. He son be scoolled then, and perfect for work mong sheps—expect answer from your Honor, adressed to as above when you have the time. As Hims teathes sharp, string will be too wake to put him of we, so must provide chains and colar of lether, so that come too 2 shiling more. Totol of hole 39 shiling—with 1 shiling lucpeny for god wish to Dog—so Totol 38 shiling.

“I am, your sarvant,

“MATHEW MACKENZIE.

“D. G. F. Macdonald, Esq., Sydenham, England.”

As abundant proof exists that uneducated labour



is comparatively unprofitable, the Agent ought to give great attention to the instruction of the labouring class resident upon the estate under his charge. We all know that increased wages are found in connection with increased intelligence; that the larger capital, in the form of intelligence, yields the larger interest in the form of wages. This is universally so. The mechanic sees it when he compares the work of an uneducated with that of an educated man. The traveller sees it when he passes from an educated to an uneducated nation. There are estates, too, in this country lying side by side, between which we could run the line of demarcation by means of the broad legible characters which ignorance has written on roads, fields, and houses, and on the persons of men, women, and children on one side, and which knowledge has inscribed on the other. This difference is certainly most striking in the mechanic arts; but it is clearly visible also in husbandry. It is, indeed, the intellectual and moral condition of the cultivator that makes the soil to teem with abundance. Many noble lords and able statemen have advocated the education of the masses; but we shall for the present refer to the speech made by Lord Palmerston at the Romsey Labourers' Encouragement Association. This truly able address was a remarkable instance of his Lordship's versatility, displaying, in a pre-eminent degree, that rare accomplishment of saying everything well. He not only gave the full benefit

of his own experience, but entered into details in a manner both attractive and instructive. He first made to the recipients of the several prizes a graceful acknowledgment of the advantages which such a distinction gave, pointing out that such a public gift made the individual esteemed and respected by those among whom he mixes. His Lordship then showed the agricultural labourer that he was an important item in the aggregate of the community. "For the agricultural class, employed as it is in the production of those means by which a nation subsists, is the most important element in the national fabric; and their good conduct or their bad conduct has an important influence upon the general character of the nation, and upon the esteem that nation receives in other countries." His Lordship pointed out also how much the character of the rising generation depended upon the example set by parents, upon whom he urged the necessity of performing aright the duties of their situation, both by precept and example—the latter especially having a great effect upon children, to whose education as much attention as possible should be given. Of course, he did not expect that they should be made scientific, but three things they ought to acquire, namely, reading, writing, and arithmetic. On the first point his Lordship merely said that as, through the diffusion of printing, there were now so many opportunities, the children ought to be able to read; but the detailed manner in which the attainment of

the art of writing was characterised, might also have suggested that his Lordship in earlier days had himself been a proficient. He blames the system on which it is now explained to them. "Children are now taught to make up-strokes fine and down-strokes bold." Now, his Lordship thinks they ought to be taught to write a large hand, and to form each letter well. This is so palpably a truism, that we willingly concede the whole force of the discovery. Then, as to arithmetic, the children were to learn, not merely to chalk down figures on a slate, but to make calculations mentally, which would be of use to them in after life ; as for instance, they should be able to know what a ditch ought to cost within a certain limit. Now these remarks form the very pith and marrow of what ought to constitute the education of an agricultural labourer's child. The opportunities are but few, and the time allowed for acquiring the mere elements limited ; it becomes therefore necessary to condense into a small compass all that ought to be known. The power of reading will solace many an otherwise weary hour, writing extends the sphere of association, while arithmetic enables a man to rise above his fellows by a simple mental process of combination. These are essential to the child born even to labour only, but the crowning point is found in good conduct and a blameless life. A village may be a very limited area of action, but, after all, it is the world in miniature.

Does the owner of property, however small his estate, aim at a life useful and beneficial to his race?—let him remember that every acre which he reclaims, every blade of grass which he bids to grow where none grew before, ameliorates the condition of his fellows. Does he aspire to wealth?—let him reflect that his gains, if less brilliant and striking than those of trade and the professions, are more certain and uniform. Is he tasteful?—he will here find scope for taste in woods, orchards, and flowers, and the designs of his buildings. Is he ambitious?—here are obstacles to be surmounted, objects to be controlled, and a kingdom in miniature to be governed by wise and wholesome regulations.

We have professional schools in almost every business of life except in the cultivation of the soil, the most important and essential of them all, and one requiring a larger amount of useful study in natural science, and in usefulness to the temporal wants of the human family than any other. We are aware of the existence of Cirencester College and one or two others, but they are of little account and of very little practical use, unless the examples teach how to make a farm profitable. In this we believe they are defective. We need a great many agricultural schools; but if what is taught in them be not at least up to the best level of the system of farming of the day—indeed, in advance in some respects—they will fail to be of much use. It is a very simple matter to have a farm attached to a

school or college; but it is quite another thing to manage it skilfully so as to be as remunerative as if it were occupied by a tenant.

When we consider that agriculture is the great business of mankind; that its successful prosecution depends upon a knowledge in the cultivation of the soil, of the principles of natural science; and that our agriculture stands in special need of this auxiliary aid; we cannot withhold our surprise and regret that we have not long since established numerous professional schools, in which our youth, or such of them as are designed to manage this branch of national industry, may be taught, simultaneously; the principles and practice of their future business. We require an initiatory study of years in the principles of law and medicine before we permit the pupils to practise in these professions. We require a like preliminary study, in our military and naval schools, of the sciences of war and navigation, ere the students are deemed qualified to command. And yet in agriculture, by which, under the blessing of Providence, we virtually “live, and move, and have our being,” and which truly embraces a wider range of useful science than law, medicine, war, or navigation, we have, we may say, no schools; we give no instruction, we bestow no Government patronage. Scientific knowledge is deemed indispensable in many minor employments of life; but in this great business, in which its influence would be most potent and useful, we con-



sider it, judging from our practice, of less consequence than the fiction of the novelist. We regard mind as the efficient power in most other pursuits; while we forget that, in agriculture, it is the Archimedean lever which, though it does not *move* a world, tends to *fill* it with plenty, with moral health and human happiness. We might profitably imitate the system of training pursued in some other countries, especially Germany, as at Hohenheim in Wirtemberg, and Möglin in Prussia. Persons desirous of learning farming thoroughly, whatever their station in life, must sink pride for a time and take a place in the operations of the farm as a junior farm-servant. The present writer fortunately had an opportunity of doing this, his father having a large glebe attached to the parsonage, besides a farm of considerable extent, and to this, in a great measure, does he attribute his practical knowledge of agriculture. Some of the most successful farmers in the kingdom owe much of their knowledge to this sort of early training. It is, however, to schools or colleges that gentlemen who are not farmers must look for a proper course of training for such of their sons as may desire to pursue rural occupations. Meanwhile, till we obtain the assistance of agricultural schools, the youth who is disposed to become a farmer should be sent, at an early age, to learn the practice on some well-managed farm, where he may begin early to love Nature.

In May last, Mr. Morton read a paper at a meet-

ing of the Royal Agricultural Society, upon the subject of Agricultural Education, or, to speak more accurately, the education of agriculturists. The paper first pointed out that the business of a farmer was really similar to that of any other trader ; that he was especially a manufacturer, and as such must bring intelligence and skill to bear upon the production of his wares, and caution and knowledge upon their disposition. The business of a farmer demanded patience, prudence, skill, and an acquaintance with the nature of soils, the formation and diseases of animals, and the nature and varieties of plants, and such knowledge could be obtained only by practical experience. A knowledge of scientific laws was also desirable to enable an agriculturist to suggest improvements or to act upon the suggestions of others. Coming to the question of the best mode of qualifying young men for the pursuit of agriculture as a business, the lecturer said that, taking experience as the only safe guide in that respect, he did not desire the establishment of special schools for farmers' sons, although he believed that ordinary schools did not give that kind of training which would develop the habit of continual observation so necessary for the farmer. Although it was desirable that the young agriculturist should learn something of botany, chemistry, physiology, and drawing, yet his real professional education must be conducted upon a farm. Any college that might be established for the particular class of students to which the

paper referred, should be agricultural in its teaching rather than scientific. It was difficult in colleges to give a preponderance to farming pursuits, and, therefore, it would be desirable that, after the usual school education, the pupil should undergo a course of practical study upon a farm for two or three years before entering the agricultural college. Such establishments as the College at Cirencester should be multiplied, and placed in districts like the Lothians and Norfolk, where there were always hundreds of young men seeking to qualify themselves for agricultural pursuits. With respect to the existing state of agriculture in England, there could be no doubt that great advances had been made of late years; but these advances might be owing to several causes—to improved condition of the land, to improved machinery and appliances for cultivation, and to improved skill and enlarged intelligence in the use of such means. While there was a generally concurrent testimony in favour of an improved condition of agriculture, there was not the same agreement as to an improvement in the purely professional acquirements of the agriculturists of the present day. Then arose the question, how could the Royal Agricultural Society best contribute to an improvement in the education of practical agriculturists? It appeared to be a natural solution of that question to make use of the numerous farmers' clubs, which are scattered all over the country, and, in connection with the

Royal Agricultural Society, to make them subservient to the great end in view. In order to stimulate exertion and to create emulation, the old-fashioned method of awarding prizes for proficiency, after competitive examinations, appeared to offer the best prospects of success. An objection might be raised that a competitive examination would not be a satisfactory test of practical knowledge, but the same objection might be urged to an examination of naval officers upon questions of practical seamanship, and therefore could not be held to have any real weight in this case. In conclusion, the paper pressed upon the society the necessity of co-operating with the local clubs to effect an improvement in the present system of education, for those whose pursuits were to be, in after life, connected with the land. We certainly admit the fairness of Mr. Morton's views generally. We think, with respect to competitive examinations, that, as rewards, scholarships would be preferable to mere prizes. Some gentlemen advocate the establishment of a National Agricultural College under Government authority, with power to grant degrees, and the formation of a great Agricultural Museum. We, however, cannot help expressing our dissent from the proposition of establishing a college and museum under State control, and we are pleased to observe that our views have the support of Sir E. Kerrison, M.P., the President of the Society.

With regard to Scotland, it may be observed that, owing to the establishment of parochial schools, the farmers of that country had in general all the advantages of a good education, and, having thence acquired a taste for reading, became, not only fond of perusing works on agriculture, but anxious to avail themselves of any information they might thus obtain. Hence the culture of artificial grasses, and the best mode of applying them by means of soiling, with various other useful practices, spread rapidly over the whole country. Numbers of Scotch farmers, also, were accustomed to travel, with a view of acquiring useful information, and of comparing their own practices with those of other districts. Indeed, many farmers derive more advantage by travelling about to see the improvements of others than by attempting to make discoveries of their own. Almost every Scotch farmer has travelled through his own county, and some of the neighbouring ones; many have visited England, and some have even penetrated into Flanders, for the express purpose of obtaining agricultural information. Indeed, the entire population of this country may be heartily congratulated on the anxious desire to obtain agricultural knowledge, which now happily so universally prevails in every part of the United Kingdom; and, when the zeal for improvement and the thirst for useful information, by which the British Isles are at this time so peculiarly distinguished are con-



sidered, there can scarcely be a doubt that the defects which have been pointed out will speedily be remedied, and that Agriculture will reach a degree of excellence in this country which will satisfy the most fastidious of our agriculturists.

Let no one, whatever his condition may be, forget that, whilst great value is attached to ancient descent and aristocratical traditions, the son of a common shop-keeper or a mechanic, if he distinguish himself and display superior talents, may rise to the rank of Lord Chancellor. He may enter the House of Peers with title, which will be transmitted to his children, and serve as a beacon to all who, born in a humble station, feel themselves animated by a generous ambition.

The love of nature in her splendid garniture is, with all of us, an instinct. It is born in us, and we transmit it to our remotest descendants; and the more our intellectual powers are developed, the warmer becomes the feeling with which we regard her ever varying forms; the higher our civilization advances, the loftier our appreciation of the endless beauties scattered around us. Arboriculture, farming, and gardening have been handmaidens of civilization in every age and country. Noah made a garden and planted a vineyard. Homer tells us about the garden of Alcinous, a little paradise containing fruit trees—the apple, the fig, the pear, the olive, the pomegranate, and the vine. Solomon had magnificent gardens, which contained trees of

frankincense and spices, and in which flourished the great cedar of Lebanon and the hyssop of the wall. The hanging gardens of Babylon were reckoned amongst the wonders of the ancient world; and the Greeks and Romans understood well the art of forcing flowers. In all countries and amongst all races it was the same, and tells of the yearning of the heart for pure fellowship with unsophisticated Nature.

“ Let others love the city,  
And gaudy show at sunny noon :  
Give me the lonely valley,  
The dewy eve, and rising moon ;  
Fair beaming and streaming  
Her silver light the boughs among.”

With reference to estate improvements and the laws affecting agriculture, we think there is still room for facilitating the raising of money by life-tenants, for the discharge of inherited incumbrances, and the improvement of their properties. Have not most of us observed, with grieving heart, the misery, abjectness, and uselessness of a life-tenant, who is borne down with the burdens of an encumbered estate? He is an ostensible landowner; but he has only the sorrowful shadow of a sway over property, while the real dominators, in a possessory sense, are mortgagees and creditors. He cannot infuse any profitable element into his nominal management of an estate which yields a large

amount of income to strangers. With deficient means he has to support a false position by expensive expedients, which involve him in deeper difficulties. He is expected to uphold a family repute for hospitality, and to exercise those acts of liberality and kindness which constitute the charm of neighbourhood, as well as the charities of social existence. Pride forbids him either to avow his embarrassments or to retrench his expenditure; and yet his ignoble secrets ooze out in spite of all subterfuges; and the very persons who partake of his good cheer covertly censure his imprudent lavishness. We draw this picture from what we have painfully remarked both in England and in Scotland. Yet are there not many, very many, proprietors, men of intelligence and integrity, capable of conferring benefits on the social system which surrounds them, but irreversibly hampered by inherited embarrassments, which no existing law can possibly extricate them from, except with the sanction of certain successive heirs? Their domains are wide, but their dominion is a nullity. They resemble the last of the Moguls, blind Schah Allum, whose power had passed away, but who groped daily to his hall of audience, and dangled a disregarded sceptre from a despised throne. We are not prone to pry into distresses which shun the public eye; but we can hardly imagine a case of sorer humiliation than that of a descendant of a long line of Highland chiefs living in fell insolvency and pining powerlessness in the home

of his ancestors; disabled from discharging just debts, and yet beholding incumbrancers deriving ample revenues from his desolated possessions. But if proprietors were empowered to relieve themselves from the overwhelming weight of settlements, and to dispose of such a portion of landed property as would clear off bondaging incumbrances, what light, and joy, and prosperity would spring up in many a Scottish region, now marked with the line of confusion and the stones of emptiness! It must, however, be admitted that to part with any portion of lands which have immemorially belonged to a lofty line is a severance which would inflict a bitter pang upon many an aristocratic mourner; but to this we would reply, surely a moderate independence is preferable to splendid slavery, and substantial ownership better than nominal sovereignty.

The life of the Land Agent is not, as many suppose, one of ignoble dependence, difficulties, and seclusion from enjoyments; indeed, few employments are so inviting, and few lots in life half so desirable, especially for a lover of Nature. In childhood and youth we often have a burning desire to live in the city. The mind warms with the thought of being permitted to behold all its sights and to catch all its sounds, to look upon its shows and processions, and mingle in its bustle and uproar; but as we grow older we are very apt to lose that feeling. Our tastes become more natural. The city becomes uninteresting; we tire of its artificial

monotony, and are sick of its noise. But nature is ever fresh and young. We drink in health amid the scenes around us. The works of her hand never weary. With every return of spring, many a denizen of the city pines for the old haunts which he once frequented, and dwells with longing upon the woods, fields, and streams about which he once wandered. Their distant scenes revisit him amid the noise and uproar of the metropolis, amid the confusion of business, and he would give much if he could again return to them; the pleasures of "The Past" haunt him, and he muses to himself:—

"Ah, if by wishing I could bring it back,  
 Or by much weeping make it live anew,  
 Or if by waiting I should see it here,  
 Or by long watching find it once more true.  
 But I may wish and weep, and wait and watch in  
                   vain,  
 For it will never more come back to me again."

We all have a lively sense of the trials, difficulties, and hardships of our own particular lot, and we are often apt to fancy that there are fewer evils in some other conditions. The sailor, when he has been a little while upon the land, tires of its monotony, and longs again to feel the motion of the sea, and share again in its excitements. But when he has been a little while at sea, tossed about with storms, he sighs for the quiet of home. The farmer, weary with toil, sometimes thinks that to do the work of



a professional man would be no toil, but pleasure. The professional man, sitting down to a piece of writing or drawing which must be done within a given time, feels that to use the hoe or spade would be a very easy matter, and preferable to head work. Allowing, however, for all these varieties of feeling, it may safely be concluded that no class of men occupy a more comfortable and desirable place in society than the Land Agent on an important estate. And where else can the lover of Nature find so much true enjoyment? We can all of us sympathise with the exclamation of the Arab scheik to Mr. Layard, as they went careering over the plain, then green with the first verdure, and enamelled with the first flowers of spring: "O, Bey! what has God given to us equal to this? what else is there worth living for? what do the dwellers in towns know of true happiness—they have never seen grass nor flowers. May God have pity on them!"

And now some readers may say, "Who is this Mr. Macdonald that takes upon himself to lecture us Agents—what does he know about agriculture and estates?" It therefore behoves Mr. Macdonald to show that he is qualified, by education and experience, to write and to lecture on such subjects; and he trusts that in giving some account of himself, and publishing a few testimonials at the end of this volume, he will not be accused of any less creditable motive than a desire to satisfy the reasonable doubts

of intelligent men ; and to show the Agent that, in accepting his suggestions, he is not yielding to the speculations of a mere theorist, but to the well-considered opinions of a man thoroughly versed in everything appertaining to husbandry and estate management.

My father was a clergyman possessed of extensive glebe lands and a farm, and I from my youth upwards have been occupied in the study and practice of agriculture. I have, since 1848, prosecuted my calling as a Civil Engineer, Agricultural Engineer, and Estate Agent. Under my immediate direction and superintendence upwards of a million sterling has been expended on the drainage and improvement of agricultural lands alone. I have been taught every branch of farming, experimentally, practically, and scientifically ; and I have farmed extensively on my own account for many years, besides superintending landed property, and keeping estate books and accounts. I have received, in short, a first-class education as an Agriculturist, Land Valuer, and Surveyor, without which no one is in a condition to criticise faithfully the management of estates in this or any other country.

With these qualifications, then, I have in the foregoing pages attempted succinctly to give my views upon Estate Management, in the hope of assisting in some degree in effecting a more equitable relationship between landlord and tenant. Having spoken from long practical knowledge, and

from considerable personal experience and inquiry, I have, perhaps, been led to form some decided opinions. If I am mistaken, however, in any of my views, I am quite open to correction, and I shall be extremely obliged to any Landlord or Agent who may take the trouble to put me right if I am wrong.

Now when poor Douglas Jerrold was contending that no epitaph should contain more than two words, and Charles Knight asked him, "What should you propose for mine?" the answer was, "Good night!" This I sincerely wish to all my readers, and best hopes for their long-continued happiness.

"Look, the world's comforter, with weary gait,  
His day's hot task has ended in the west :  
The owl, night's herald, shrieks,—'tis very late ;  
The sheep are gone to fold, birds to their nest ;  
And coal-black clouds that shadow heaven's light,  
Do summon us to part, and bid good-night."

## APPENDIX I.

---

### FARM OPERATIONS FOR THE MONTHS OF THE YEAR.

#### JANUARY.

*Ploughing.*—If the state of the weather and soil are favourable, push on rapidly with the ploughing. In no case take in hand the ploughing when the soil is saturated with wet—good work cannot result: this holds more especially true of heavy adhesive clays.

*Drainage.*—When the state of the land and weather are favourable, proceed with drainage operations in the field. (For full descriptions of method of draining, see Stephens' "Manual of Practical Draining," or chapter on Draining in Morton's "Young's Farmers' Calendar.")

*Wheat Crop.*—If the condition of the soil permits, proceed with what remains to be done in wheat sowing, (For remarks on this crop, see introduction to the month of October in this Calendar.) In the choice of seed, the farmer will be guided by the locality and condition of the field: a red variety may be used if these are favourable to the early ripening of the crop; if not, a white.

*Beans, Tares, and Peas.*—In good soils and favourable situations these crops may be laid down; the beans to be sowed in drills at least 28 or 30 inches in width. By sowing a mixture of tares and rye, a good supply of forage in spring for cattle may be obtained. In the great majority of localities it will be too early to put down peas; a few however, in good soil may be sown.

If the *Turnip* lifting has not yet been completed, proceed with this operation, removing the tops or shaws, care being taken not to cut or injure the bulbs in removing the tops. Turnips are piled up in triangular heaps, having a base of about six feet, and thatched with straw. When consumed in the field, the produce of three rows may be thrown into one, and covered with the plough. When turnips run to seed they become woody.

## FEBRUARY.

*Ploughing.*—See remarks on this department in last month. A furrow of average depth should be taken if the turnip crop has been wholly removed; a shallow furrow if the turnips have been eaten off with sheep.

*Drainage.*—(See last month.) Care should be taken not to leave the trenches open to be attacked by frost. The filling in should be done as rapidly as possible after the trenches are cut.

*Wheat Crop.*—Proceed with the sowing of such fields as may not yet be done; select a variety which will mature early, and with a stiff straw; dress with “Down’s Farmers’ Friend,” or other wheat steep, before sowing; and apply a phosphatic manure.

*Beans, Tares, and Peas.*—See remarks last month.

*Barley.*—Although usually sown in March, if locality and soil are both favourable, it will be worth while for the farmer to sow down a limited breadth of this crop, for it is worthy of note that the early sown barleys are better than the late.

*Oats.*—Land in good condition, that is, dry, rich, and, with a fine tilth, may be laid down in oats this month, towards the middle or latter end.

## MARCH.

*Ploughing.*—The remarks made under the month of January as to ploughing when the land is in a fit state,



apply here forcibly to the operations of this month. The soil, when turned over by the plough, should be in a fine friable condition, not adhesive, cloddy, or lumpy. It should be remembered that the condition in which the soil is for seeding, and in which it is left after seeding, influences, in a very marked manner, the after cultivation of the crop during its growth, and, by consequence, its final result.

*Wheat Crop.*—Little land should have to be laid down for this crop so late on in the season; the only varieties admissible where it has to be done being the April or bearded wheat and Talavera.

*Barley.*—The sowing of this crop should be regularly proceeded with. The soil is in best condition when friable, moist, but not wet. In selecting the seed, it is a good plan to procure seed from an early district. Chevalier barley stands highest in the estimation of brewers for malting purposes; the six-rowed variety (bere or bigg) yields heavy crops, but the quality is coarse, and not valuable for malting.

*Oats.*—Proceed with the sowing of this crop, care being taken to have the soil in a favourable condition, and the seed selected of an early variety.

*Beans.*—Early in the month, the seed should be sown if possible in drills, in order to enable cleaning and weeding to be carried on; and the soil should be well manured.

*Tares and Rye,* for a supply of green food for cattle, may be sown in drills.

*Flax.*—"Land intended for flax demands particular attention now. The land should have been deeply ploughed last autumn, and should, as soon as sufficiently dry, be well harrowed, rolled, grubbed, and well cleaned of all root weeds, such as scutch, crowfoot, &c. The best soil for flax is a deep, strong loam; and rich stubble land, after wheat, oats, or barley, produces the best sample, particularly if the grain crops have succeeded lea; the seed may be sown by the end of the month, and well harrowed with a short-tined harrow, first one way, and then across, or diagonally, so as to distribute the seeds equally; finish with the roller. It

is much safer to sow too thick than too thin. Good crops are taken after potatoes, mangolds, carrots, and parsnips; but there is a decided opinion in the north of Ireland against growing flax after turnips.

*Spring Vetches.*—Sow another breadth of this valuable crop for summer soiling. When well up sow another breadth, in order to keep up a continuous succession of succulent forage. About four pounds of rape, sown along with the vetches and oats, will help to keep the former off the ground, and add considerably to the bulk of the crop.

*Carrots* love a deep, sandy loam, which, when well manured with well-decomposed compost, intimately mixed with it, produces this crop in the highest state of perfection. On this account the best practice is to manure the land heavily in the autumn, and plough it in with a deep rough furrow; it is then harrowed down, as soon as thoroughly dry in the spring, cross ploughed, well harrowed, rolled, and, if necessary, well grubbed and rolled, so as to reduce it to the finest possible tilth, preparatory to forming the drills, which are then rolled to flatten their tops and consolidate them, and immediately sown. If the land has not been manured in the autumn, it may be manured at the time of sowing, and put in the drills as is usual for turnips. Carrots may be sown from the middle of the month up till the middle of April, but the earlier the better.

*Parsnips* like a deep, sappy, heavy soil, not wet; and to produce a heavy crop, it should be rich and well manured with rich compost. The cultivation of the soil is the same as for carrots, and the seed may be sown at the same time; but carrots will produce better if sown a little later than parsnips.

*Cabbages.*—Prepare a clean, rich, and well-manured piece of land, and pulverize it well, to sow some cabbage seeds; lay it off in three-and-a-half or four feet beds, with eighteen-inch alleys, level the beds neatly with the back of the spade; sow the seed thinly and evenly, and cover with about an inch of fine earth from the furrows, rake the

surface nicely, and when dry enough beat it well with the back of the spade, which will prevent it cracking or fissuring. The large York, Nonpareil York, and Drumhead, are the best sorts to sow now for field culture, and will produce fine plants for planting out in May and June.

*Kohl Rabi*.—Sow early in the month on a well-manured bed seed for plants for transplanting.

*Potatoes*.—The land for this crop should be stirred over with the grubber rather than turned over by the plough. Liberal manuring, with phosphatic guano or first-class superphosphates, should be attended to.

*Grass Seeds and Clover*.—In lands sown with wheat and barley grass seeds and clover should be sown; the seed should be covered very lightly with a light bush or grass-seed harrow; or, in some soils, better still, with a light roller. Be very careful as to the purity of the seeds selected; by using cheap seed, a great loss may be sustained. In this department, perhaps more than in any other connected with farming, is the saying peculiarly applicable, "Penny wise and pound foolish," where cheap, impure, weedy is preferred to dear but sound and clean seed.

#### APRIL.

*Ploughing*.—Land intended for green crops should only be ploughed where the soil is in that sound condition which will work freely under the plough, yielding a fine friable soil under the final action of the harrows. In working the land for turnips, some prefer the grubber to the plough, as it brings the weeds better to the surface, and, upon the whole, leaves the land in a state better suited for the crop than if the plough was used. Plough lea land, and seed after the ploughing, harrowing in the direction of the furrow both before and after the sowing.

*Drainage*.—All the fields which are to be under crop, and the drainage of which has been begun in the preceding month, must now be finished.

*Barley, Oats, and Beans.*—The sowing of these crops must be completed this month, and as early as possible. Every exertion should be made to secure favourable conditions of soil and weather for these crops. A chance now lost may never come again.

*Flax.*—(See remarks for last month.)

*Carrots, Parsnips, and Cabbage.*—Carrots and parsnips must be sown this month if a good crop of each is desired. Cabbage should be planted out at distances varying from 28 to 36 inches.

*Potatoes.*—The ploughing for this important crop should be proceeded with most vigorously; the land should be in good condition, richly but not over-manured.

*Mangold Wurtzel.*—Towards the end of the month this seed should be sown, in drills 28 to 30 inches apart, the same as for turnips. The crop requires heavy applications of manure, in which, if salt is given at the rate of two-and-a-half cwts. to the acre, the crop will be all the better. The seed should be steeped in a weak solution of nitrate of soda, or even pure water, for two or three days before sowing.

*Grass Seeds.*—These are usually sown down with the barley, although, as stated in last month, sometimes with the wheat crop. (For operations, see the last month's remarks under this head.)

#### MAY.

*Ploughing.*—The work under this department is chiefly confined to the preparation of the summer fallows. The first operation in advanced farming being the grubbing or scarifying of the surface soil, so as to stir and bring the weeds to the surface, the grubber being worked first in one direction and afterwards across that of the original furrows. The grubber for this work is preferable to the plough, which does not act so favourably upon the roots of the couch grass and upon the other weeds.

*Beans, Peas, Tares.*—All the land under these crops



should be carefully hoed and freed from weeds, and the soil brought well up over the root. Much of the value of the resulting crops depends upon the perfect way in which the stirring, hoeing, and cleansing of the soil are affected.

*Mangold-Wurtzel and Potatoes*.—Work on vigorously with the sowing of these crops, if not already completed. (For remarks, see last month.)

*Turnips and Swedes*.—The land should be prepared for the turnip crop: the weeds should be got rid of as carefully as possible; the soil to be in good tilth, and well manured.

## JUNE.

*Ploughing*.—Proceed with summer fallowing in cases where it is deemed advisable to adopt the system. (See remarks under last month.)

*Draining*.—The summer months are very suitable for carrying on draining operations in lands under grass and on fallow.

*Weeding*.—All the crops now in progress of growth, and which are capable of being brought under the action of the hoe, hand or horse, should be attended to. The adage is worth remembering, “One year’s seeding (of weeds) is seven years’ weeding.”

*Mangolds*.—When sown at the proper time, the plants of this most important crop will be so far advanced as to admit of their being trimmed and singled. This should be done by hand, if a good after crop is wished for; no machine *can* do the work properly. Take advantage of the opportunity to clean the weeds from between the drills or rows, and stir the soil well up.

*Turnip Crop*.—Proceed vigorously with the sowing of the turnips; with regard to this crop no opportunity should be lost to get the seed in early this month. “Now or never” should be the farmer’s motto at this time. Some of the early sown *Swedes* will now be ready for hoeing, weeding, thinning, and singling. (See par. (d) above.)



*Haymaking.*—This, one of the most important operations of the year, will now—in favourable localities and seasons—be engaging the attention of the farmer. Space does not here permit us to go fully, nor is it necessary to do so, into the details of the work of the hay-field.

## JULY.

*Ploughing and Draining.*—The work connected with summer fallows should be proceeded with, and the manure applied where necessary. The drains should be finished by the latest at the end of this month, so as to free all hands for the labours of the harvest now nearly at hand in some of the early districts.

*Weeding, Hoeing, and Cleaning of Growing Crops.*—All the strength of the farm should be put to these important operations. (See remarks under last month.)

*Turnips.*—The plants in many of the fields sown last month will now be ready for thinning and singling.

*Forage Crops.*—On spare plots summer rape and white mustard may be sown for a supply of cattle food in the autumn. Rape is a special favourite with milch cows, and greatly increases the flow of milk.

*Haymaking.*—In the majority of districts this is the great farming feature of the month, “Make hay while the sun shines.” This proverb conveys much literal as well as suggestive truth to the farmer at this period of the year.

## AUGUST.

*Ploughing—Autumnal Culture.*—In favoured districts, where some of the fields have been early cleaned of their crops, towards the latter end of the month every attempt should be made to obtain all the advantages of early cleaned and stirred fields. To obtain this object the grubber and broadshare are most valuable implements, and should be at once brought into use. In the preparation of the *fallows*,

the land being by this time well freed from weeds, the manure should be applied. If lime or compost have been used, it will be advisable to harrow them in before finally ploughing.

*Turnips.*—The best opportunity for cleaning the turnip crop will be afforded this month, and every endeavour should be made to take advantage of it.

*Harvesting of the Cereals.*—In preparing for this the grand feature of the year, the realization of all previous labours, the business capabilities of the farmer will be favourably or unfavourably shown. No time should be lost in seeking for or in preparing all appliances required for field work. The reaping machine, if used, or if not used, the sickles and the scythes should all be put in the best of working order, so that no time may be lost in the field when cutting operations have fairly commenced in making good deficiencies in machines and tools.

#### SEPTEMBER.

*Ploughing and Autumnal Culture.*—(See remarks under last month.) In the preparation of large breadths of land for succeeding crops, the steam plough comes into favourable circumstances where it can be economically employed. Lands which have carried the potato crop should at once be put in preparation for the wheat crop. Fallow fields should now be ploughed, preparatory to seeding in the second week of next month.

*Wheat Crop.*—Where the dibbling of single seeds is adopted, the wheat sowing may be proceeded with.

*Potato Crop.*—(See remarks under last month.)

#### OCTOBER.

*Ploughing and Autumn Culture.*—Should the weather be dry enough to admit of the use of the grubber and the harrow, opportunity should be availed of to carry out autumn-

nal clearing. The effects of this in getting rid of weeds, which would otherwise be abundant, are most strikingly beneficial; and it is in view of the rapid and efficient way in which the operations necessary can be carried out, that the steam plough is so valuable an adjunct to the farmer.

*Drainage.*—The time is now very favourable for drainage operations being carried on in fields which are cleared of their corn crops.

*Root Crops.*—The taking-up and storing of root crops now demand the best cares of the farmer. (For full details of the modes of carrying out these operations most economically, see the appropriate section of the “History of the Agriculture of 1865,” companion work to this Almanac.)

*The Wheat Crop.*—The getting-in of this—the most important of all the cereal or grain crops of the farm—constitutes the principal feature of field work during this month (October) and the next.

*Beans and Tares.*—Winter beans may be sown this month. The mode of culture is precisely the same as that pursued in other months for spring beans. Tares and rye may also be sown with advantage, to yield a spring crop of cattle food.

#### NOVEMBER.

*Ploughing.*—The working of the stubble fields for succeeding and spring crops may now be proceeded with on every opportunity offered. This should not, however, be done unless the weather is good: to attempt to work land, especially that of a close adhesive nature, in a thoroughly wet condition, is worse than useless.

*Drainage.*—A vigorous effort should be made to get all drainage operations finished before the severe frost set in.

*Wheat Crop.*—Continue to sow fields not finished last month; and take in hand those which still remain to be done. If the weather is good, but an early rain likely to succeed, ploughing, seeding, and harrowing-in may be proceeded with consecutively, that is, if the state of the soil is

good, which it should be ; for no advantage is obtained in sowing where the soil is in bad condition.

*Turnip Crop.*—The white and yellow turnips should be got up and stored as early in the month as possible. Indeed, for the white variety, this in many districts will be late enough, as frosts very rapidly attack and deteriorate the value of the roots.

#### DECEMBER.

*Ploughing and Draining.*—The ploughing of stubble land should be no longer delayed if the weather and soil are in good condition. The ploughing of lea land should also be proceeded with. Drainage operations should now be pushed forward to completion.

*Wheat Crop.*—Should the weather and circumstances of soil in previous months have been such as to prevent the wheat sowing being proceeded with, no time should now be lost in making up for the delay.

---

### LIVE STOCK.

#### JANUARY.

*Cattle.*—The food of cattle fattening for market should be made richer by the addition of oil-cake or bean meal. A “soup,” such as recommended by Mr. Lawrence, will push on cattle quickly for the shambles. Grazing cattle will not be the worse for a slight addition to their food in the shape of turnips and a modicum of rape cake. The reader is here referred to the remarks under this head in the month of October, showing the necessity of attending to the care of cattle during the winter months.

*Calves and Dairy Stock.*—The calves should not be subjected to biting blasts of winter in cold exposed fields and during damp weather. They should be carefully at-

tended to in warm sheltered sheds and courts. This remark applies with equal, if not greater force, to the milch cows; for it may be taken as axiomatic that if the food, the shelter given to, and the care taken of, dairy cows are not given as they ought to be, the supply of milk will not be at all satisfactory. [For remarks on this head, see month of October in this section.]

*Horses.*—The same care which we have urged upon the attention of the reader with respect to cattle and dairy stock are just as necessary in the case of horses; perhaps more so, in view of their greater individual value. Good, careful grooming, regular feeding, supply of good water, plenty of fresh air, and regular exercise are the points to be attended to.

*Sheep.*—Supplement turnips and straw food with a supply of oilcake, beans, or oats, and provide shelter from the cutting winds. Keep ewes near their confinement in separate folds, and those about to be confined in warm shelter sheds. Pay great attention to the quality of the food given to ewes, and avoid the use of frosted turnips and early got up mangolds, which are apt to scour; mangolds are all the better for being stored up for a month or two.

*Pigs.*—Keep pigs warm, and well but not over supplied with food. Boil the roots given to them, and mix with bran and sharps. Sows near littering to be kept quiet and warm. In giving food to pigs do not forget a supply of small knobby lumps of coal, they are better for them than cinders; but cinders of even an inferior quality are better than none. The beneficial action of coals upon the health of pigs is very decided; how they act is not known very precisely: the subject is curious, and deserves to be investigated.

#### FEBRUARY.

*Cattle.*—It is a maxim in cattle feeding, based upon sound principles, that the improvement in the condition of fattening cattle should be a constantly progressive one; no going back should be tolerated, for the same rates of improve-



ment cannot be again attained. Be careful, therefore, to attend to the regular, steady feeding of stock. In place of keeping them always on the same kind of food, study to give them from time to time changes. The importance of a change of food to cattle has not been fully recognised, important as it is admitted to be in human hygiene. In the varied foods now at the command of the farmer, there can be no excuse for not attempting this change. The care of the farmer at this period of the year in this department is to get the cattle fitted for the fat cattle markets; to aid in this, the advantages of this "change" system will be apparent upon a steady trial of it. It increases the appetite and promotes the assimilation of the food. An excellent fattening food is made of oil-cake, rape-cake, bean meal, and oats or barley; nor should a little condimental food or addition to the food be despised.

*Calves and Cows.*—Keep the calves in *dry* and warm shelter sheds, well supplied with food, of which the kind, the quality, the quantity, and the mode of giving must be proportioned to their age. A little salt should not be forgot, and a lump of chalk should be placed within their reach. Cows giving full milk must not be let down; the addition of a little rape-cake and cabbage as green food will be found to add to their milking capabilities. At the same time, it should not be forgotten that what will suit one cow will not suit another. Hence the value to the farmer of the "change" system of food which we have advocated on the feeding of fattening stock. We have no hesitation in saying that this plan of carrying out an unvarying system of feeding in the case of farm stock of all kinds is as unphilosophical in principle as it is productive of unsatisfactory results in practice.

*Horses.*—The work of horses on the farm having being increased by this time, the corn supply should in proportion be increased. Do not let long intervals elapse between the times of feeding; long fasts are as prejudicial to horses as to men.

*Sheep and Ewes.*—An allowance of oil-cake or other oleaginous food should be added to sheep folded on the turnip brake. The importance of warm shelter to sheep is rapidly becoming recognized, although the practice is, we regret to say, as yet very limited. It is strangely suggestive that while the importance of warmth to fattening cattle and dairy stock is quite undisputed, its importance to sheep should have been so long in being recognized. The ewes near confinement must be carefully looked to, kept quiet, well fed; and shelter should be provided for the coming lambs.

*Pigs.*—Feed up pigs intended for killing. Oatmeal or Indian corn meal, during the last three weeks, given in unstinted quantity, will be found excellent in giving what has been somewhat artistically called, the “final polish off” or the finishing touch. Breeding sows must be attended to; cooked potatoes or mangold will be relished, all the more so if a little salt or some condimental food be added. Warm mashers should also be provided to the sows having litters.

#### MARCH.

*Cattle.*—See remarks under last month. Those to be sent into pasture in the coming spring will be all the better if they receive, for some time before they are put out, a little extra nutritious food, as oil-cake or the like.

*Calves and Dairy Cows.*—See remarks under last month. Cows in milk should have their food given them in a warm and moderately soft or liquid state.

*Horses.*—The addition of carrots to horses will be found to improve their condition greatly. Warm mashers will be useful, if not as a regular portion of their food, yet as occasional. Oats, beans, and hay should form the staple of their food; but whatever is deemed best, consult regularity in feeding, and do not neglect a supply of pure water.

*Sheep and Ewes.*—See remarks under last month. The ewes about to drop lambs should be provided with warm

shelter sheds during the night; they may be turued out if the weather is moderately open during the best part of the day, but not towards early morning or evening, especially if the winds are cold and the weather damp.

*Pigs.*—See remarks under last month. See that the feeding pigs get each an equal share of food; the weak must be guarded against the tyranny of the strong; if not some will be gorged, others starved.

#### APRIL.

*Cattle.*—If the supply of potatoes be good, the fattening cattle may have an addition of a few to the turnips, upon which they are mainly fed, say in the proportion of one-third potatoes to two-thirds turnips. The oil-cake and meal, in small quantities, should form a regular part of the food. If the tares and rye are sufficiently forward by the end of the month, a little added to the straw given to young stock will bring them rapidly forward. If these green foods are not obtainable, grass may be given.

*Cows.*—Green food, if attainable, should be now added to the food of cows in full milk. In this way the advantage of the produce of an autumn-sown break of winter rape will be very marked. It is wonderfully liked by cows, and adds materially to the milk which they give. *Calves.*—See remarks under March.

*Horses.*—Being now in full work, every attention to the feeding and grooming must be given—regular feeding at short intervals, not exceeding five hours, are essential. Break colts to the yoke gradually, and with “gentle firmness.” An hour’s harsh and violent treatment of a colt under “breaking in” will do away with the good effect of days of a contrary treatment. Humanity in this department is the best policy. *Mares* near foaling to be kept in loose boxes, with regular food. A due amount of exercise should be given.

*Sheep.*—Keep up the condition of fattening sheep by

regular, careful feeding. Ewes with lambs should be supplied with food to act upon their flow of milk. Studiously keep both them and the lambs from exposure to cold, wind, and rain.

*Pigs.*—Pigs which have up to this time been preparing for, will now be ready for sale. Young litters, with their mothers, should be regularly fed and kept warm, and well supplied with clean dry litter.

#### MAY.

*Cattle.*—Keep up the system of regular steady feeding. By this time much supplementary food may now be obtained. Mr. Lawrence's mode of feeding will be found useful now.

*Cows.*—In full milk, cows require careful attention in regard to kind and quality of food. See remarks under last month.

*Horses.*—See remarks under March.

*Sheep.*—Sheep which are to be shorn this month should be washed some week or ten days before. The operations of both washing and shearing are too frequently performed in a very slovenly, careless way. It is of importance that both should be carefully done in view of the value of the wool.

*Pigs.*—The addition of some green food, grass, rape, rye, or tares, will be relished by pigs along with their ordinary food. Cooked potatoes, turnips, or mangolds, will form the staple of store pigs' food. Sows with litters should have occasional, if not regular, warm mash given to them.

#### JUNE.

*Cattle.*—Cattle will now be fed chiefly, if not altogether, upon grass either from the pasture field, or supplied to them in the fold. The latter known as "summer soiling," is a system highly thought of by some, and if care has been taken to secure a good breadth of land under rape, rye, and tares, and white mustard, its advantages will be at once ap-

parent. Cattle nearly ready for the shambles will be all the better for the addition of a little oilcake and meal with their green food. The supply of water should be looked to.

*Cows and Calves.*—Chiefly fed in the pasture fields, and out therein all day, it will be advisable to house them during the night; previous to locking them up give each cow a supply of green food and a “leetle bit of cake.” Rape cut green will be amazingly relished by the calves, and in many cases they may be turned out altogether into the pastures. More satisfactory results will however be obtained if they are summer soiled in courts and sheds, a little cake or meal being added to their supply of grain food.

*Horses.*—See remarks under last month. The hard work which is now their lot must be met with increased care and attention in their regular feeding. Housing at night in the yards or hammels, or in well ventilated stables, will be found better management than leaving them in exposed pastures. The mares should now be served; remember the adage, “Like begets like,” so avoid a false economy in providing “old screws” as the probable source of wretched colts.

*Sheep.*—See remarks under last month as to watering and shearing. After shearing use a “wash” or “dip” to kill vermin, and render them less liable to be attacked by flies in the hot summer months. A portion of the tails of lambs, male and female, may be cut off this month, and the tub lambs castrated.

*Pigs.*—Large additions of green food should now be given to pigs, and if a field is available, a run for some hours a day should be afforded them. This should not be done in the hottest part of the day in sunny weather, unless shelter in the field is within their reach. The whey, sour and skim milk from the dairy, and the swill from the kitchen, should be saved and given to the store pigs..

## JULY.

*Cattle.*—Summer soiled cattle should have a mixture of



oleaginous cakes, or of oilcake alone, given to them; nor will those in pasture be the worse for this as the period for their going to the shambles approaches. If pastures are very poor, the cattle which are intended for winter feeding should receive such supplementary food as will enable them to be kept in that progressively improving condition so much desiderated.

*Cows and Calves.*—See remarks under last month. Shelter during the extreme heat of the day should be procured for milk cows; it will save them much torment from flies, the attacks of which are most virulent at the height of the day. This recommendation applies indeed to all stock which are generally exposed in the fields.

*Horses.*—See last month.

*Sheep.*—To keep down the attacks of flies, sheep washes and compositions will now be in demand. Avoid driving the flocks with dogs in the heat of the day; the gathering, dipping, &c., should be done in the cool of the morning or of the evening.

*Pigs.*—See last month.

#### AUGUST.

*Cattle.*—See last month.

*Cows and Calves.*—Regular and abundant supplies of food are required by cows in full milk. To food obtained from the pasture a supply of green cut food should be added, and a little rapcake or oilcake after being housed for the night. *Calves.*—See last month.

*Horses.*—See remarks under the month of June as to shelter at night.

*Sheep.*—See last month for remarks on dipping.

*Pigs.*—Feed on grain food, the refuse from kitchen, and the whey, &c., of the dairy. Nursing sows must be supplied with warm and moderately liquid meal mash.

#### SEPTEMBER.

*Cattle.*—The decreasing supply of food obtained from the

pasture fields, and the gradually decreasing temperature, demand on the part of the stockholder increased care and attention. The food will require to be supplemented by various foods, and shelter will require to be thought of as the nights get cold. See remarks under the succeeding month. The late brakes of green forage will now come in advantageously, if the farmer is fortunate enough to have them, if not, some advanced turnip brake may be available.

*Cows.*—The supply of food from the pasture being by this time probably limited, it will have to be supplemented by green cut forage or tares, clover, rape, or mustard; a few turnips may also be available, and the giving of cooked food, especially at night, may now be commenced. The housing at night should now be insisted upon. Calves must be carefully looked after, and kept from undue exposure to cold and damp.

*Horses.*—The condition of horses must be carefully looked to, as they are particularly liable to the attacks of certain diseases at this period of the year. On no account should they be left exposed in the open air all night.

*Sheep.*—Rams of pure breed should be obtained for the serving of the ewes which are selected for breeding. The condition of the sheep nearly fitted for the shambles should be kept up by the addition of a little cake to their food.

*Pigs.*—Green food may now be given to the store pigs; meal mashies not too fluid to those preparing for the butcher. Nursing sows should be supplied with fluid mashies, in which whey, milk, and kitchen refuse are used.

#### OCTOBER.

*The Housing, Feeding, and General Management of the Live Stock* of the farm during the trying months of winter begins now (October) to engross the cares of the prudent farmer. Recent chemical and physiological investigation have made the fact abundantly clear that the old fashioned mode of keeping live stock exposed to the inclemency of the weather

during the winter months, and of half feeding them on supplies, too often stinted, of straw and turnips, is as inhumane as, from a business point of view, it is unwise. Great attention is now being paid to the scientific principles upon which depend the great truths of which all advanced farmers are now fully aware, namely, that the greatest economy in the consumption of food, and the quickest results in the fattening of the animals which consume it, are obtained by providing them with proper *shelter*, and a judicious combination of various feeding materials. As regards the first of these essentials, it is truly pitiable to see the profound ignorance with which it is treated by too many owners of stock in this country. Apart from the fact, that while exposed to the inclemency of our proverbially severe and changeable winter in open fields or exposed farm yards, a large amount of the food which they consume goes merely to keep up the supply of animal heat which would otherwise go to the formation of fat, and which is therefore just so much meat and money thrown away—it ought not to be beneath the notice of the enlightened and Christian farmer, that the poor animals thus exposed are subjected to no small bodily pain and torture. There is, indeed, no fallacy in farming so productive of loss of profit to the stock-farmer, and of pain to the animals demanding his care, as that which maintains that all the animals of the farm are hardy habits, and capable of standing any amount of exposure and deficiency of food. The very contrary is the case; all of them—especially true is this of the horse and the cow—possess a remarkably delicate organization, keenly alive to bodily pain and even nervous—we cannot say mental—disturbance, and are consequently liable to many diseases which are as sudden in their attacks as they are difficult to be remedied. Knowing what we do of the physical organization of our domestic animals, of the advantages arising by attending to what this knowledge dictates, and of the loss, on the other hand, of neglecting them, we feel that we cannot urge too much the importance of duly providing for the stock of the

farm ample and comfortable shelter for the winter months ; nor could a little be said here on the humanity involved in this. Not seldom are we pained in our winter inspection of farms to see the suffering of the noble horse or of the patient ox exposed to the biting blast of winter, and forced to pick up the scantiest of livings from the frozen fields. In connection with the case of the animals of the farm, there are some exceedingly interesting points involved.

*Cows and Calves.*—The patience, careful attention, and general good management of the dairy will be much more severely tested during the winter months to follow October, than they have been during the summer and autumn months which have just passed. The low temperature, and the frequent and considerable changes in the condition of the atmosphere ; the kind of food upon which the cows are in some cases compelled to be kept ; the peculiar changes in their milk-producing capabilities which arise often in a most puzzling variety, and the flavour which the milk very frequently obtains from the food used, all tend to keep alive the vigilant care of the dairymaid during the winter months. If cleanliness was insisted upon during the practice of summer, it could not be insisted upon as more essential than it now is. Cleanliness of every part of the dairy and of every utensil in it is absolutely required. We have no hesitation in saying that in the great majority of instances where bad colour or taste of butter is met with, they arise mainly from want of cleanliness in utensils used. Thus, the condition in which we have too often seen the vessels in which the milk or cream was stored up—to sour for butter-making—was sure to affect the taste of the butter. Thus, in stirring the cream from time to time it is frequently so carelessly done as to cause it to start up and adhere in spots on an irregular margin on the sides of the vessel. Now, if these spots on this attached margin of cream are not wiped carefully off by means of a clean damp cloth, they will become rancid or bitter, and will taint the cream in the body of the vessel. The same will happen if



the spoon or other implement used to stir the cream is used time after time without being washed. In short, the grand secret of successful butter-making is to have in everything and everywhere the most scrupulous cleanliness.

*Horses.*—The work of the farm being now generally severe and continuous, it is all the more necessary that the condition of the horses should be conscientiously and carefully looked after. Drinking of cold water after work should not be permitted, nor the entrance of the horses into ponds. They are at this season peculiarly liable to the attacks of dangerous diseases; all sudden chills, such as those which would result from the above, or from exposure to night air, or cold winds, or drenching rains, must be avoided. The food should be abundant and nutritious, and given at regular and not lengthened intervals. Green food, if attainable, should not now be given; if a use is wanted for it, give it to the pigs, which will greedily devour it. The nursing of colts should be judiciously proceeded with. For a note on the value of gentle treatment and on the absurdity of cruelty, even in a pecuniary sense, see remarks made under April. Foals may now be weaned; and when weaned, or during the process of weaning, allow them one full feed of oats daily, but divided into two portions, one given in the morning, the other in the evening. If the weather is open, they may be turned out into a pasture, but only during the day.

*Sheep.*—The sheep folded on turnips should be supplied with hay, and those preparing for the butcher with one pound of oilcake daily. Lambs for winter and spring fattening, if out at pasture or stubble, should have a little cake, hay, and turnips given to them. Ewes for the early lambing should be out in good pastures. Sheep, for the killing of parasites, should be all carefully dipped or cleaned.

*Pigs.*—Those for the butcher must be finished off with abundant supplies of fattening food—mashes of meal, oats, or Indian corn. Nursing sows to be kept warm, and fed with moderately liquid mashes. Store pigs to have a supply of dairy and kitchen refuse, with meal, &c.



## NOVEMBER.

*Cattle.*—See remarks under last month for general management.

*Cows and Calves.*—For general management of the cows, see remarks under last month. The calves should be maintained in a regularly improving condition. If turned out to pasture—which should *not* be done in cold, damp, windy weather—they should have a supply of dryish food given to them before being turned out.

*Horses.*—As the work of horses may now be considerably reduced, it will be necessary to reduce correspondingly their supply of food. A too full diet at this period is apt to induce diseases; but, at the same time, the farmer is not to have the idea that a starving system is to be adopted with any advantage. A horse is not worth much if let down in condition, and it is by no means an easily done or a cheap thing to get him up into it after he has been let down. Cut fodder should be given, and every attention paid to the supply of water.

*Sheep.*—See last month.

*Pigs.*—Clean litter, and abundance of it, should be supplied. Warm and moderately liquid food to be supplied to the nursing sows. Kitchen and dairy refuse, and distillers' dregs, &c., to be supplied to the store pigs. Fattening pigs to have mashes of meal, with potatoes, turnips, or mangolds.

## DECEMBER.

*Cattle.*—The great aim of the feeder this month is to keep the stock free from the effects of exposure to cold wet weather and sudden changes of temperature. Box, hammel, and stall feeding have all their advocates. Good and regular feeding to be carefully attended to. See last month.

*Cows and Calves.*—The cows in milk to be fed with cooked food, moderately warm and liquid. Rape-cake will be found to add to the supply of milk. Drying cows about

to calve to be fed on drier food, and kept within rather than over. If too well fed before calving, there is much danger of milk fever. *Calves*.—Feed regularly, and with nutritious food; and above all, prevent all exposure to sudden and long-sustained changes of temperature. It is wretched policy to starve young stock through lack either of food or warmth.

*Horses*.—See last month.

*Sheep*.—Hay to be supplied to the sheep folded upon the turnips, and a modicum of oil-cake. Those upon pastures to have hay and cut turnips. Do all to maintain the progressive improvement of the stock. Ewes should be sheltered at night which are to drop their lambs early. Good and abundant supplies of food to be provided.

*Pigs*.—See last month.—*Farmers' Almanac*.

## NOTES OF THE MONTHS.

### JANUARY.

January may possibly be dreary enough, yet still we have something to cheer us. Crocuses and snowdrops rear their pretty bright blossoms from out their snowy beds; the pale honeysuckle puts forth its leaves; and the flowers of the winter aconite, daisy, laurustina, hazel, bearsfoot, &c., first open. The honey-bees begin to come abroad; several of our favourite birds commence their soft twitterings in the hedgerows, woods, and fields—among them the redbreast, bunting, skylark, missel-thrush, titmouse, and blackbird.

### FEBRUARY.

The early spring flowers now begin to put forth their blossoms, and stray blue violets and yellow primroses will be found in sheltered nooks; the favourite honeysuckle puts forth its leaves; while the spring crocus, the lesser peri-

winkle, the spurge laurel, white alysson, &c., burst forth into bloom. The birds begin to pair; ringdoves coo, the greenfinch, gold-crested wren, and yellowhammer, open their little throats, as if to usher in the coming spring-time; the pied wagtail is first seen. The blackbird's song commences, awakening the woods with its ringing note; the pigeon lays, and partridges pair.

#### MARCH.

Whether "a bushel of March dust" may be "worth a king's ransom" we leave every one to judge for themselves. We know that it is sometimes very unpleasant; yet we have something to cheer us against the rude blasts of Boreas. The dog-rose, lilac, sweet brier, hazel, red and black currant, gooseberry, all begin rapidly to shoot forth their leaves: while the peach, white poplar, mistletoe, wallflower, speedwell, daffodil, and numerous other plants and trees are blooming in all their first beauty.

#### APRIL.

Every one looks forward to the advent of this month, as being the harbinger of Spring; for the genial showers of April, after the dry winds of March, soon make lovely the hedgerows and fields. The bluebell and buttercup, the lilac, maple, sycamore, ash, &c., are now in bloom, as also are many fruit trees in the orchard, scattering their perfumes at every breeze. The nightingale's song commences, the grey plover appears, the house-sparrow builds, the cuckoo and whitethroat are first heard, and the ringdove hatches.

#### MAY.

The good old May-day customs have long since departed; the merry and gay processions—the gathering of the dew at early morning to wash the faces of pretty maidens, in order to make them "beautiful for ever,"—are indulged in no

longer; but there are still the old associations with the charming month of May. The flowers are more numerous, and after a shower the air is redolent with perfume, Trout and chad-fishing begins; bees swarm, the partridge and pheasant lay, and the May-fly and cockchafer appear.

#### JUNE.

This is one of the most delightful months for a country ramble. Now the June flowers show themselves in all their beauty, and the berry-bearing plants are in full blossom; hay-making commences; the various grasses, like silken tracery, are waving their flowers in feathery foliage; the whole country wears a lovely appearance, and here and there the corn is already beginning to show its ears: the song of the missel-thrush and redbreast ends, pheasants hatch their young, and the note of the cuckoo is last heard.

#### JULY.

Trees now begin to make their summer shoots; nearly all the grasses are ripe; and as the dog-days set in, many of our song-birds cease their warblings—among them the blackbird, the song-thrush, and the hedge accentor; but the golden butterflies are on the wing, and numerous moths appear; the song-thrush lays a second time; partridges are by this time fledged; young frogs come to land; and nearly all the thistles are in full flower.

#### AUGUST.

The glorious harvest-time is now approaching, The corn fields are in all their beauty; the reapers are preparing to cut the golden grain; soon the loaded waggons will be wending their way to the farm-house and barns, and then comes "harvest-home." The linnet and the goldfinch cease their song; but the red-breast resumes his note as a sweet compensation. Swallows and martens congregate, winged

ants migrate, lampern fishing begins, and grouse and black-cock shooting commences.

## SEPTEMBER.

This is the busy month for hop-picking; and it is also a festive time with children in the country; the blackberry, sloe, hawthorn, elder, and other wild berries, are ripe; acorns fall, goldfinches and peewits congregate, and unfortunately, many of our favourite feathered songsters fall beneath the ruthless gun of the sportsman; the ringdove's note ceases, but the hedge accentor's song is again resumed; house-sparrows collect together, and the trees begin to change their foliage.

## OCTOBER.

The days now begin to grow short, and the nights and mornings chilly. The hop-pickers are still busy at their labours, and the orchards by this time have been nearly denuded of their ripe fruits. Pheasant-shooting begins, and fox and hare hunting commences; martens are last seen; the wild goose and duck and jack-snipe arrive, also the golden plover, short-eared owl, and the woodcock. The latter, if plentiful, is a certain forerunner of cold weather.

## NOVEMBER.

The flowers are fast fading from their late charming beds nearly all the trees are getting leafless as the cold increases. The song of the skylark ceases, and the note of the bunting is no longer heard; wood-pigeons congregate, and the woodcock, hooded crow, teal, fieldfare, grey wagtail, and redwing arrive; titmice draw nearer to houses; the squirrel retires amid his winter stores; the badger, the hedgehog, and the dormouse betake themselves to slumber, and family circles gather closer round their firesides.

## DECEMBER.

The note of preparation for Christmas is now sounded,



and all begin to look forward to festive times and good cheer. Grouse-shooting ends; skylarks, greenfinches, and chaffinches congregate. The wind, which follows the first severe frost, scatters all the remaining foliage from the trees. The March titmouse resumes its song; and we trust our many readers will follow the little warbler's example, and thereby enjoy what we heartily wish them.—A MERRY CHRISTMAS, AND A HAPPY NEW YEAR.—*Bow Bells.*

---

## RINDERPEST;

OR, THE TREATMENT OF CATTLE. BY LORD KINNAIRD.

In common with other landed proprietors, I am deeply interested in the question of the rinderpest, and being a large stockholder, I have carefully watched the progress of the disease which has proved so fatal. I have especially turned my attention to the premonitory symptoms, and I believe I have gathered some hints which may be of use to those interested in the matter, and in the hopes that this may be the case, I have resolved to publish the result of my experience. Having heard and read much on the subject of the rinderpest, and anticipating its importation into this country, when I heard of its outbreak, and found that no steps were to be taken by the authorities to stamp out the plague, I resolved to use every means to keep the enemy at a distance. I escaped the consequences which befel many of the purchasers of stock at public markets, and especially at the fatal Falkirk Tryst, by abstaining altogether from my usual practice of purchasing in the autumn from eighty to a hundred head of store cattle.

I am in the habit of letting year by year a considerable number of what we term in Scotland grass parks, or fields, to farmers, butchers, and cattle dealers. On the first ap-

pearance of the disease in Scotland, I gave notice to the renters that no animal purchased at any market would henceforward be admitted, or any cattle whatever, without a certificate from a veterinary surgeon named by me. This created much dissatisfaction, and I was threatened with actions of damages, non-payment of rent, &c., but I remained firm, and it is now admitted I was right, not only for my own sake, but for the sake of those who had stock in the fields.

While the cattle were at grass no further precautions could be taken beyond putting pieces of old iron in the water troughs ; I of course continued the practice with my own cattle and sheep, which I had observed for years, of placing rock salt in the cribs, and in boxes in the fields.

As soon as the cattle were housed, I proceeded to take extra precautions to keep out dogs and cats, putting locks, and padlocks on the doors and gates, to exclude tramps, who are said to have conveyed infection as well as the above-named animals.

Iron pans with coal tar were distributed in and about the steading, hot irons being inserted into these three or four times a day, causing the tar to give off creosote, which in my opinion is the best and cheapest disinfectant, bearing a close affinity to the carbolic acid which is recommended by the Royal Commission.

Earthenware pans, containing either chloride of lime dissolved with sulphuric acid, or flour of sulphur, the latter set on fire twice a day, were placed in the steadings. I prefer the sulphur, because the fumes, penetrating every part of the enclosed building, are inhaled by the cattle, and deposit a substance on their coats which is licked up by them, and tends to purify the blood. It would be presumptuous to say that I owe the freedom I have hitherto enjoyed from the plague to this disinfecting process, as I am aware that many farmers have done nothing and yet are free from disease ; yet I believe these preventive measures have been instrumental in keeping off the infection, at least

from one of my farms which is within two gunshots of a steading where the disease has raged for nearly three months, but where a large proportion of the cattle have recovered—which were for the most part treated according to the plan I will hereafter describe.

I have heard of no stronger case of the apparent value of disinfectants than that of the exemption from disease of the Duchess of Athol's valuable herd of Ayrshires, though nearly the whole of the stock of a tenant farmer only a few yards off succumbed to the plague.

My idea, however, is that the disease has been spread by the mucus from mouth and nostrils being conveyed either by the wind or other means; and especially by the droppings of animals in railway trucks, and markets, farmers attending the latter often giving their dirty shoes to be cleaned by a maid servant, who perhaps milks the cows. My reason for thinking the infection is conveyed more by something which comes from the animal than the mere atmosphere, is from the following facts:—Four stots broke out from a steading not far from one where the plague was raging, and were found by their footprints to have been round and round about the sheds where the diseased cattle were kept, and yet they escaped infection. The veterinary surgeon attending made a point of letting his own three cows smell and lick his clothes, on returning from visiting the diseased stock, and no evil effects have arisen.

I will now proceed to describe the way the greater part of my animals are fed, which I believe renders them less liable to disease, and if attacked with the plague better prepared to resist its fatal effects. The hay and straw in about equal parts is cut by a chaff cutter, and mixed with turnips washed, cut, or pulped by a machine of my own which I have had at work for many years, which never gets out of order, and wears well; the chaff absorbs the juice of the turnips or potatoes, prevents scouring, all danger of choking, blowing out, &c.; in addition to two feeds of this mixture,

most of the animals get one feed of cooked food, viz., boiled or steamed potatoes with chaff, meal, or cake; thus the bowels are kept in a healthy state, neither confined or relaxed; into this mixture I *now* put for feeding stock a handful of salt, although they have rock salt in their mangers and iron in their water: ventilation is strictly attended to, and by the plan I adopt all unpleasant smell is prevented, although the manure heap and stock are under the same roof. However, having no less than seven homesteads, I can hardly expect to escape entirely.

Now as to the plague itself, I have not the slightest doubt that the *disease commences in the fourth or digesting stomach*; how communicated I cannot tell. I found this assertion on the following fact:—One of my tenants and a brother of his, in conjunction with another of my tenants, bought a lot of cattle from the breeder, among whose stock there was no disease. The brothers had their lot driven home, and then divided them. The third lot, which has not been affected, were driven home two days later, and by a different route. Five weeks afterwards, one animal of the first lot was observed to be ailing, and the veterinary surgeon of the district, not having seen a case of the cattle plague, called in a brother veterinary, who declared it an undoubted case of rinderpest. Although the two brothers' lots were some miles apart, they resolved to have all, though apparently sound, slaughtered. On a *post mortem* examination *one or more red or purple spots*, showing signs of incipient inflammation, were found in the fourth stomach of *every one of them*. Hence the veterinary surgeon of my district was satisfied that he had discovered the part *first affected*, and proceeded to treat the disease accordingly. And I consider his mode of treatment founded *on reason*. Inflammation takes place in the fourth or digesting stomach, therefore he gives that stomach nothing to do—no hard food which requires to go through the digesting progress—the animals are placed on sawdust or sand, to prevent them getting a mouthful of fodder, as even that small quantity,



or one slice of raw turnip is sufficient to increase the inflammation, which rapidly spreads to the other stomachs, and thus all action is stopped or else diarrhœa sets in, and the animal dies in twenty-four hours; even for some time after the animal has got over the fever, the smallest quantity of uncooked food proves fatal. Animals are often ravenously hungry before the disease fully manifests itself, hence they are supposed to be quite well. The truth is, *before the disease is generally observed the animal is half dead*, and many animals I see are reported "unaffected," which in reality are stricken, for the disease often remains in a dormant state for some weeks; it is therefore of the highest importance to take it in time, as it is comparatively easily cured in the early stages; and I am convinced that if one animal in a homestead shows signs of *real* rinderpest, every animal in the same steading, whether in contact or not, has imbibed the seeds of the disease, though there are doubtless animals, as there are human beings, not liable to infection.

I say real rinderpest, because we hear little now of inflammatory attacks, pleura pneumonia, and mouth disease, which were prevalent at the time of the outbreak of the plague. I have no doubt that animals have been slaughtered suffering from these diseases, as some of the symptoms resemble the plague; but I have seen an animal affected with pleura attacked with rinderpest and recover. The difference between the two diseases is easily discernible, as although there is quickness of breathing in rinderpest, there is not the same difficulty as in pleura. The question is how to discover real rinderpest *in time to treat and cure it*. First, observe narrowly the lips and nostrils; these at first become hard, then puffy and swelled, the inside of the cheeks red, the gums blue and livid, the breath offensive, and as the disease progresses a discharge of bitter mucus from nose and mouth and running from the eyes, the head hanging down, and a look of distress, which, when once seen, will not be forgotten; fever then comes on, and the pulse ranges from 80 to 130; the animal cannot stand, but



lies with its head turned back over the shoulder, moaning; in cows the vulva should be observed, as it shows signs of inflammation; and in all there is a peculiar uneasy motion of the tail, indicating that there is irritation of the rectum; at a more advanced stage in cows, the milk either changes colour or stops suddenly, and when it returns is for some time of a dark brown colour.

I do not pretend to have discovered all these unmistakable symptoms myself, but they were pointed out to me by the very intelligent veterinary surgeon of my district, and by a no less intelligent grieve or under-bailiff, who had the charge of the stock, which I carefully examined and watched; this man has not the slightest doubt of being able to carry an animal safely through the disease, if taken in time. He puts the apparently unaffected animal in the same loose box with the animal "down" with the plague, in order as he says to carry it through and finish it off. No worse cases could be seen than some which passed through his hands. Animals most difficult to treat are cows in calf, as abortion comes on, and there is the additional inflammation to contend with.

When rinderpest first declares itself in a homestead I would recommend the following course to be adopted:—sell off to the butcher all fat animals, having previously arranged with a salesman connected with the dead meat markets; put the *whole* of the breeding and store stock under treatment, removing all fodder, and substituting sawdust or sand for straw, so as to prevent the possibility of the animals getting anything to eat but cooked food, and that in moderate quantities. Those animals having any of the aforementioned symptoms should get linseed oil and treacle, if necessary in large quantities, injections of linseed oil may also be advantageously administered at the early stage of the disease, and small doses of laudanum, to increase to one ounce doses if diarrhoea sets in. Having ascertained, as before stated, the part of the animal first affected, the whole question of cure appears to rest on finding out means to reduce the

inflammation in the fourth stomach ; whether this can be done by small doses of laudanum in the first instance, or by the Homœopathic remedies of arsenic, belladonna, and phosphorus in large doses, or by any other means, remains to be proved. When animals are *down* with the fever they should be supported with stimulants, such as ale and a little spirits. The fever lasts four days, and if an animal lives till the fifth he may be considered safe *if properly* managed ; but all depends on careful nursing, both during the disease and when convalescent ; where this is the case *experience shows that a large proportion will be cured*. The animals should be kept warm, with a good supply of warm water to drink.

I believe the great mortality which has taken place has been caused in a great measure, first, from animals being in an unhealthy state from previous mismanagement, or from the treatment they have been subject to through ignorance, drugs, quack medicines, stimulants administered at the wrong time, all adding to the inflammation at the diseased part ; besides, as I have said, the disease has made such progress that the poor animal is half dead before it is declared to be a case of rinderpest. I am surprised to see veterinary surgeons of high reputation declaring animals “unaffected” although in close contact with diseased ones. I am satisfied that in such cases not one out of fifty are unaffected, though the disease may not declare itself in a virulent form for days or weeks ; *all, therefore, should be put under treatment at once*, and a large percentage will be undoubtedly carried through safely. It is a fact, however, that where care and skill are used with success the cases are declared to be mild, or it is said that the disease is assuming a milder character, but where the most wretched treatment is pursued, and the cases are consequently for the most part fatal, the disease is said to be of a virulent nature.

Few, if any, of the veterinary surgeons or of the able medical men who have turned their attention to the question of the disease, have, I think, *sufficiently studied the*

*early symptoms*, which are evident to those who have narrowly watched diseased stock under their charge. Had post mortem examinations been made in all stages of the plague, before it is apparent to the ordinary observer, before and after the fever, and during convalescence, a greater insight into the nature of the disease would have been obtained, and the blunder would not have been made which has confounded rinderpest with small-pox. An animal in the *last* stage of the disease often has an eruption which resembles small-pox, but I am informed by medical men that this eruption takes place in bad cases of typhus fever, to which the rinderpest, I should say, bears greater affinity.

In recommending what has been contemptuously termed my no-treatment system, I have to contend with the prejudice, which always exists against simple remedies and the desire to find some specific medicine or receipt to meet every stage of the disease. There is considerable difficulty also in getting so simple a treatment fairly carried out. At the same time I am glad to find that my views are making progress.

The following letter from a well-known intelligent large farmer in the west of Perthshire proves this :—

“ MY LORD,

“ *3rd February, 1836.*

“ The interest which your Lordship is well known to take in the cattle plague will, I hope, excuse my addressing you on the subject.

“ Although I have from the first supported the ‘ stamping out ’ system, if carried out under certain conditions, not embodied in the new Bill, and consequently have been an opponent to the system of which your Lordship has been the consistent advocate, I have now from experience been obliged to change my views. I have, by following the treatment recommended by your Lordship, been so fortunate as to see a good portion of my stock recover, and this has also been the case amongst my neighbours who have pursued the same course.

“ A large per-centage has recovered and is recovering in this district, and the disease appears to be assuming an increasingly mild type. Under these circumstances it is natural that we live in constant fear of the new Act coming into operation; its provisions will, if rigidly enforced, sweep off the remnant of our stock, of which, speaking from my own experience, from one half to two-thirds might otherwise be saved. Were the sacrifice likely to conduce to the benefit of others, it might be borne, but it is difficult to see how the slaughter of only the animals actually seized can extinguish the disease, which will continue to linger in our herds until they are sent to grass, when all control over them will cease. The almost universal feeling in this district is hostility to the Bill, and a determination to resist its provisions by every means. It will confer a great benefit on us if your Lordship would be pleased to exert your influence to get the slaughtering clause of the Act modified, or its action postponed, which would be the means of saving a great deal of valuable stock.

“ I have the honour to be, my Lord,

“ Your Lordship’s most obedient Servant,

---

“ Rt. Hon. the Lord Kinnaird, &c., &c.”

I hear also that in the other parts of Perthshire 70 per cent. are being saved by the treatment I recommend, and I could point to numerous herds there and in Forfarshire brought through the disease in which few if any deaths have occurred. But the following report of a case on a farm in the north, is to my mind conclusive as to the success of the treatment I recommend. But careful watching cannot always be secured, both owners and those in charge are anxious to try new remedies, or do not adhere *strictly* to the rules laid down.

Feb. 24. “ On the farm of ——— when the disease broke out there were in all 58 beasts; after the disease broke out 10 living calves born at their natural time were



added to the stock produce of the cows included in the above number. Total cases of disease—68.

	Deaths.	Recoveries.
19 Cows . . . . .	3	16
1 Bull . . . . .	0	1
20 Two yr.-old . . . . .	5	15
18 One yr.-old . . . . .	5	13
10 Calves . . . . .	3	7
68 Cases	<hr/> 16	<hr/> 52

Before any disease broke out, all the stock had been put upon cooked food and got arsenicum, *no other medicine given* but sulphur and phosphorus homœopathically. McDougall's and Condry's disinfectants and hot lime were used to keep the atmosphere sweet, and great cleanliness preserved, the animals were watched day and night by the farmer or some of his family. Eyes and noses were frequently washed with warm water, the attention paid was careful and humane, and nothing neglected which could minister to the comfort of the suffering animals."

I have now given the result of my experience. I have no intention of asserting that others may not by different means have arrived at the same ends, or that other modes of treatment may not prove successful. My own conviction is that no specific medicine for the disease has yet been discovered, that recoveries are owing chiefly to the care taken of the animals, and keeping from them all that can possibly aggravate the disease; at the same time it is but fair to state that some of the cases of cures I have referred to, have, as far as medicines are concerned, with the exception of linseed oil, been treated homœopathically, while in other cases the same management without these medicines has been tried elsewhere, and has, I understand, sometimes failed.

I feel that it is a duty incumbent on us all to try every curative means, and that *wholesale* slaughter is a crime. At the same time I cannot but look upon the plague as a mys-



terious dispensation of Providence which, like other visitations, may have its special purpose. The Cholera taught the necessity of sanitary measures, the potato disease no doubt expedited the Repeal of the Corn Laws, and the cattle plague may result in a more judicious treatment of our animals and other purposes at present unrevealed.

If the inhabitants of towns fully realised the extent of the calamity which has fallen on the country a day of general humiliation and prayer might, with great propriety be set apart, but as the extent of the calamity is not realised it must be left for those upon whom the scourge has more immediately fallen to join publicly in supplication to the Almighty that he will stay this mysterious and fearful plague.

KINNAIRD.

---

### CURE FOR THE CATTLE PLAGUE.

A few weeks ago a letter appeared from Mr. Hope, in reference to a curative mode of treating the cattle plague, as tested on the occasion of an outbreak of rinderpest at the Lodge Farm, near Barking, on the outskirts of the metropolis. The process devised and carried out by Mr. Hope had all the appearance of success, inasmuch as 111 cows were saved, under circumstances which must have proved more or less fatal but for the adoption of measures sufficiently potent to cope with the disease. Into the details of his plans and experiments Mr. Hope did not then enter; but a very extended and interesting account of the whole affair has just been given by that gentleman in the columns of the *Gardener's Chronicle*. As we cannot be certain that the rinderpest will not reappear in this country, the possibility of curing it, or of preventing the spread of infection by other means than the pole-axe, is a subject of great public importance. We therefore propose to give an analysis of Mr. Hope's published statement, believing that this succinct account will interest

our readers, and may prove of service in calling attention to the remarkable facts which it embodies.

As for the origin of the rinderpest in England, Mr. Hope is decidedly of opinion that the disease came to us from abroad. In the next place, he believes that the plague found its way to the Lodge Farm by the agency of the butchers. Last spring and summer the disease was working its way out of the metropolis in an easterly direction, and the district in which the Lodge Farm was situated was "declared" infected, under the Orders in Council. Consequently, out of a standard stock of 300 cows, not a single fat cow could be moved from the place alive, and the only alternative was to admit the butcher, who killed his cows on the premises and afterwards removed the dead meat. As the butchers entered various places, and were sometimes engaged in killing infected—perhaps even diseased—cattle, there is little difficulty in believing that they might convey the seeds of infection to healthy sheds, and so extend the area of the disease. In no other way can the appearance of the rinderpest on the Lodge Farm be so readily accounted for. The disease first showed itself in sheds which were either visited by the butchers, or which were immediately in the track of the latter, as they traversed the farm. Sheds more remote—there being seven in all—were not attacked until a subsequent stage in the progress of the calamity. It may thus be inferred that a butcher is almost as likely to carry infection as a cow, and needs to be looked after by the Privy Council almost as keenly.

Mr. Hope gives us a vivid description of what the rinderpest is in appearance, and declares that the effect on his own mind was so painful as to be almost overpowering. He refers gratefully to the valuable information which he received from Professor Brown, of the veterinary department of the Privy Council, as also to the knowledge which he gleaned from the admirable pamphlet of Mr. Creakes, who, at the instance of the Privy Council, had accomplished a lengthened and laborious series of practical experiments on the rinder-

pest. A very interesting fact pointed out by Professor Brown was this—that on a *post-mortem* examination of an animal killed while under the influence of rinderpest, the food in the third stomach was found to remain undigested, as if this part of the animal system had lost its power. The food lay very much in the same state as when swallowed, and the intestines were in places very much inflamed. The symptoms were not altogether confined to rinderpest; but when that disease was really present the food thus remaining in the third stomach would, after the lapse of a few days, begin to putrefy, producing inflammation of the intestines, and a sort of putrefaction of the mucous membrane of the animal. Hence the sickening and revolting stench which accompanies the disease, and the ulcers which ultimately appear in the animals' mouths. This fact explains the value of a treatment like that of Mr. Worms, which limits the food of the animals to a liquid form, and that in moderate quantities. A person who imported twenty cattle exhibiting symptoms of rinderpest simply fed them on liquid food, and saved thirteen of the number. The efficacy of this remedy obviously depends on the precise stage at which this stagnation of the third stomach commences.

The phenomenon thus referred to served as one indication of the course to be pursued in the treatment of the plague. Another point was this—the proved value of carbolic acid as a specific against infection. It so happened, owing to circumstances which Mr. Hope explains, that the cattle-plague had existed on his farm for a week before its presence was clearly apprehended. The first symptoms showed themselves on the 26th of July, but it was not until the 2nd of August that Professor Brown felt warranted in giving a decisive verdict, whereupon the inspector was called in, and, as Mr. Hope describes it, “the dreary work of slaughtering and grave-digging commenced.” During all the preceding days no extra precautions had been adopted, and consequently the sheds where the disease had prevailed most had been strongly infected. The enemy had thus stolen a march

upon its victims, and thenceforth the fight was at the greater odds. But Mr. Hope was not to be daunted, and it is impossible not to admire the patience with which he adhered to his formidable and distressing task. "I thought," he says, "that where there was life there was hope, and determined to do more than anybody had ever done before. Where one man had used a hundredweight of quick-lime I determined to use a ton, and where one man had used a pint of carbolic acid I resolved to expend a gallon."

The first process was to prevent any reinfection of the sheds. Slaked lime was placed in small pyramids in the centre of the sheds, and trains of it were laid outside under the ventilators. The roadways and paths were smothered at different points in layers of quick-lime three or four inches deep. Owing to the difficulty of obtaining an adequate supply of carbolic acid, Mr. Hope resolved to concentrate his energies chiefly on two particular sheds out of the seven. These he took into his especial and sole charge. In addition to placing quick-lime inside and outside these sheds, he placed a belt of quick-lime about twenty feet in width and three or four inches deep across each of the roads leading to the sheds, and removed from their doors some thirty or forty feet. Similar belts, but rather wider, were placed at the entrance gateways leading from the principal farm road. No one, on any pretence, was allowed to pass inwards over the belt of lime nearest the sheds, and the men within the latter were placed in a state of siege. Some six or seven hundredweight of chloride of lime was also used in the sheds, being all that could be procured. In their diet the cows were deprived of everything in the nature of solid food. They were fed with gruel strained through fine muslin, and the meal used was obtained from linseed and barley. At the suggestion of Professor Brown an ounce of sulphite or hyposulphite of soda was added to each portion of gruel, to stimulate the action of the glands and the cud-chewing apparatus; and in desperation at the non-arrival of a sufficient supply of carbolic acid, the resolute experimenter gave the



animals each day for the first three days a couple of quarts of beer, with a large dose of quinine or salicine dissolved in it. He also gave them at a different time of day fifty drops of the homœopathic tincture of arsenic. But the carbolic acid was the great desideratum, and getting it was the great difficulty, both in regard to quantity and quality. When obtained, it was applied by wholesale. Internally it was used by the spoonful, externally it was dashed about by the bucketful. Some of the animals were actually burned by the acid, of course unintentionally; but it was remarkable to observe in the case of one cow which, despite all precautions, was attacked by the disease, that her hide seemed almost proof against the corrosive action of the fluid, and the moment she was soused with it she seemed to revive. This cow was saved, and was the only animal attacked out of the 111 contained in the two sheds over which Mr. Hope presided. Two of these cows were indeed given up to the pole-axe, by a pardonable manœuvre, whereby two splendid creatures doomed to death from another shed were rescued from the inspector and the policeman. The two valuable cows thus saved were exposed to the utmost risk prior to their being conducted into the inner circle, having been in three highly-infected sheds, and being placed for a time beside a diseased animal. In short, Mr. Hope came off triumphant with 111 cows, in addition to a bull, which he protected on the same principle as the others. Thus there remains the remarkable fact that Mr. Hope saved every animal he attempted to save, rescuing one from an actual attack of the disease, and preserving more than a hundred from the influence of the contagion which was raging like a conflagration close at hand. On one occasion a strong wind set in, and blew the poisonous odour from the sheds of diseased cattle towards those which Mr. Hope was so sedulously watching. The foul stench was distinctly perceptible. To counteract this peril an immense fire was kindled in a line between the two points, and on the fire was thrown a small quantity of sulphur. Presently the wind shifted so as to



bring the odour from another centre of disease. A second fire was kindled, and both were kept alight, so as to provide against the variations in the direction of the wind, which were somewhat frequent.

"It is of no use," says Mr. Hope, "to play with a few drops of carbolic acid; it must be used by the gallon; everything must be covered with it, both men and beasts." The want of a sufficient and unadulterated supply of this article was Mr. Hope's greatest embarrassment. But for this he might perhaps have carried his experiments further. But he has done enough to show the possibility of superseding the pole-axe. His remarks on the report of the Cattle Plague Commissioners are very much to the point. They had facts before them which ought to have led them to a better conclusion than the mere slaughtering of diseased and infected animals. They had, says Mr. Hope, the clue in their hands, but they refused to follow it up, and appealed to others to display that "perseverance and energy" of which they themselves furnished so poor an example. Various experiments had shown good results. What so natural, then, as to combine the several processes, so far as they were evidently capable of combination? This was the course which Mr. Hope himself pursued; and while the inspector was directing the work of slaughter in one part of the farm, Mr. Hope in another part was fighting with the infection—and even with the disease—and that with complete success. The only semblance of failure is in the circumstance that one of the cows in the two isolated sheds was attacked by the disease. But she was afterwards cured, although removed elsewhere to be treated. It must be acknowledged, at the same time, that Mr. Hope's experience proves the tremendous character of the danger. How terrible must be the power of that infection which has to be faced with such extreme precautions! Not even London itself seemed capable of meeting Mr. Hope's demands for carbolic acid. He wrote down to Manchester for a cask of the precious disinfectant, to be sent by passenger train, by the most rapid

route regardless of expense, and to be marked "urgent," "immediate," and so forth. But railway authorities are not to be hurried, and so the cask remained four days in London while the experimenter at Barking was at agony-point through lack of his grand preservative. Supposing, therefore, his remedy to be adopted, should the rinderpest again invade our shores, very special measures would have to be taken in order to work it out. But the value of a remedy for the rinderpest, and a preservative against its infection, is enormous. The pole-axe system is itself replete with difficulties and disadvantages, with little encouragement by way of counterpoise, whereas the one now proposed is in the nature of a victory. The highest credit is due to Mr. Hope for his intelligent and persistent efforts, and we trust they will meet with the attention they deserve.—*Standard*.

---

### A CURE FOR THE CATTLE PLAGUE.

M. Miall, a great agricultural authority in France, writes to the *Journal d'Agriculture Pratique* that he has received a letter from M. Philibert, a large landowner in Southern Russia, which says:—"I am anxious to make known to you that of all the means employed in the numerous experiments I have made to preserve my horned beasts against the cattle plague, sea water given in place of soft water has had during all the epidemic complete success. Animals supplied with sea water were spared by the malady, and yet those were intentionally placed constantly in contact with sick beasts." To show the value of M. Philibert's testimony, M. Miall states that he has obtained one of the two gold medals given to Russia in the Exhibition for wool; that he possesses 80,000 merino sheep, 2,000 to 3,000 horned cattle, 500 to 600 horses, and that his lands are situated in the Government of Taurida (the Crimea), that is to say, in the province in which the cattle plague originated.

Some statistics were given at a meeting of the York Chamber of Agriculture, showing the destructive effects of the cattle plague. It was estimated that 4,286,427 head of cattle had been lost by the rinderpest, or 1,874,772 more than were imported from the 1st of January 1842, to the end of last year. Resolutions were adopted expressing the belief that the importation of foreign stock was the principal cause of the unhealthy state of English stock during the last twenty-four years, and recommending that all foreign animals should be slaughtered at the ports of debarkation.

---

### THE MOVEMENT OF CATTLE.

A supplement to the *London Gazette* contains an Order in Council, which declares that—

Article 25 of the Consolidated Cattle Plague Order of August, 1867 [as to markets, exhibitions, and sales] shall be read and have effect as if the following words were omitted therefrom, namely:—"If the cattle are not affected with cattle plague, and have been on those premises in possession of the owner or occupier thereof not less than twenty-eight days immediately before the sale."

Articles 27 to 37 inclusive, and article 39 of the Consolidated Cattle Plague Order of August, 1867 [as to the movement of animals] shall cease to operate, and cattle may be moved as if those articles had not been inserted in that Order.

Every license granted by the Privy Council for the holding of a market, exhibition, or sale, before the commencement of this Order, and in force at the commencement thereof, shall continue in force thereafter, as if this Order had not been made, subject to revocation by the Privy Council, and as if the conditions, provisions, and regulations applicable, under this Order, to such market, exhibition, or sale, had been referred to in such license, instead of the

conditions, provisions, and regulations of the Consolidated Cattle Plague Order of August, 1867.

Nothing in this Order shall extend to the Metropolis, or affect the operation or construction of the Metropolitan Cattle Plague Order of August, 1867, or interfere with the institution or prosecution of any proceeding in respect of any offence committed against, or any penalty incurred under, any of the aforesaid articles of the Consolidated Cattle Plague Order of August, 1867.

This Order amounts virtually to a withdrawal of all restrictions on the movement of cattle in the interior of the kingdom.

---

#### ACTS OF PARLIAMENT : SESSION 1867.

The chief energies of Parliament in the Session of 1867 were absorbed by the Reform Bill, but some few Acts which were also passed may fairly claim attention here. Among these were—

An Act giving facilities to the Royal Commissioners who were appointed to make enquiry respecting trades' unions and other associations of employers or workmen. It recited the case of outrages that had taken place at Sheffield, and that it was desirable that witnesses should be examined upon oath as to the circumstances of such outrages. It enacted that an inquiry should be held at Sheffield, and full powers were given to the commissioners to form a court for that purpose. Any person examined as a witness, who, in the opinion of the person conducting the inquiry, made a full disclosure of all matters in respect of which he was examined, was to receive a certificate of indemnity against future proceedings. The success of the inquiry in this instance led to an extension of the powers of the Commission to other towns, at a later period of the Session.

An Act for the Extension of the Factory Acts to a large number of trades, regulating the hours during which



children, young persons, and women, are permitted to labour in any manufacturing process conducted in an establishment where fifty or more persons are employed; and another Act, entitled "The Workshop Regulation Act," affording protection as to the hours of labour to children, young persons, and women, working in smaller establishments, to take effect on the 1st of January, 1868. Subject to exceptions mentioned in a schedule annexed to the latter Act, no child under eight years of age is to be employed in any handicraft; no child is to be employed on any one day for a period of more than six hours and a half, and such employment to be between the hours of six in the morning and eight at night; no young person or woman is to be employed in any handicraft during any period of twenty-four hours for more than twelve hours, with intervening periods for taking meals and rest, amounting in the whole to not less than one hour and a half—and such employment is to take place between the hours of five in the morning and nine at night. No child, young person, or woman, is to be employed in any handicraft on Sunday, or after two o'clock on Saturday afternoon, except in cases where not more than five persons are employed in the same establishment, and where such employment consists in making articles to be sold by retail on the premises, or in repairing articles of a like nature. There are regulations as to attendance at schools, and parents are to cause their children to attend, under a penalty of twenty shillings for each offence.

## TAX ON DOGS REPEAL ACT.

(30 &amp; 31 Vict. c. 5.)

All persons keeping dogs must be licensed so to do. The notice where such permits are to be obtained must be exhibited on the doors of churches by the Commissioners of Inland Revenue, or proceedings taken under the Act are to be invalid. No person is to be charged with a greater amount



than £23 2s. for any number of hounds, or £5 5s. for any number of greyhounds, during the year that ends in England on the 5th inst., and in Scotland on May 24; but from the 5th inst. the uniform duty of 5s. per annum will be imposed on taking out a licence on every dog. The penalty for keeping a dog without a licence, or keeping a greater number than licensed, is to be £5, and the person in whose custody, charge, or possession, or on whose premises any dog "shall be found or seen," is to be deemed keeper of the same unless the contrary be proved. Dogs under the age of six months are not to be liable to the tax.

AN ACT TO AMEND "THE LABOURING CLASSES DWELLING ACTS,  
1866."

(30 & 31 Vict. c. 28.)

In the 4th section of "The Labouring Classes Dwelling-houses Act, 1866," the words "land or dwellings" for the purposes of which the advance is made, and in the 12th section of "The Labouring Classes Lodging-houses and Dwellings Act (Ireland), 1866," the words "lands, buildings, or premises," for the purpose of which such advance shall be made, shall respectively be construed to include any land, buildings, or premises held, together with and for the same estate and interest as the lands, buildings, or premises upon which the money advanced is to be expended under the provisions of the said Acts respectively. In case of advances to a company or society, part of whose capital remains uncalled up or unpaid, Loan Commissioners may dispense with a mortgage of such capital remaining unpaid, or such part thereof as they may think fit. Notwithstanding the 53rd section of the Act, 1851, all the provisions of "The Labouring Classes Dwelling houses Act, 1866," extend and apply to Scotland as far as they are applicable.

HYPOTHEC AMENDMENT ACT (SCOTLAND), 1867).

(30 & 31 Vict. c. 42.)

This Act applies only to farms, or land with buildings

thereon occupied for farming purposes, and does not apply to dwelling-houses, shops, and other subjects, save as respects register of sequestrations. Whenever any corn or other agricultural produce shall have been *bonâ fide* purchased for its fair marketable value, and delivered and removed, it is to be free from hypothec. By the 4th section hypothec is not to be available beyond three months after rent is payable, and stock of a third party taken on a farm to graze is to be liable only to the amount of consideration payable for the grazing. When agricultural produce or stock is sequestrated, it is incompetent to include furniture, implements, imported manures, lime, drain tiles, feeding stuffs. A register of sequestrations for rent to be kept at each sheriff's or other court where sequestration for rent is or may be granted, and on granting any sequestration for rent there shall be forthwith entered in such register the name or names of the tenant or lessee whose agricultural produce, live stock, or effects are sequestrated, and every person shall be entitled, on payment of a shilling, to search the said register during office hours of every day on which the office of the sheriff, clerk, or other officer having the custody thereof shall be open.

THE DRAINAGE AND IMPROVEMENT OF LANDS SUPPLEMENTAL  
ACT (IRELAND), 1867.

(30 & 31 Vict. c. 43.)

By this Act it is declared that as against any person owning or interested in any land or other property situate beyond the limits of the jurisdiction of the board established by the Act, nothing contained in the said "Drainage and Improvement of Lands Act (Ireland), 1863," or in the provisional order, or in this Act, shall be construed to render legal any work executed or to be executed by such board that would, if the said Act had not been passed, have been illegal by reason of its injuriously affecting such land or

property; and any damages adjudged to be paid by the said board to any person as aforesaid shall be deemed to be part of the costs incurred by such board in defending legal proceedings instituted against them, and shall be defrayed in manner in which the said costs are authorised to be defrayed by the "Drainage and Improvement of Lands Act (Ireland), 1863."

SALE OF LANDS BY AUCTION (AMENDMENT) ACT, 1867.

(30 & 31 Vict. c. 48.)

This Act commences to take effect on the 1st day of August, 1867. "Auctioneer" shall mean any person selling by public auction any land, whether in lots or otherwise. "Land" shall mean any interest in any messuages, lands, tenements, or hereditaments of whatever tenure. "Agent" shall mean the solicitor, steward, or land agent of the seller. "Puffer," a person appointed to bid on the part of the owner. Section 4 enacts that where sales are invalid in law they are also to be invalid in equity; and with regard to sales without reserve it is enacted that the particulars or conditions of sale shall state whether such land shall be sold without reserve or subject to a reserved price, or whether a right to bid is reserved. If such is the case, it shall not be lawful for the seller to employ any person to bid at such sale, or for the auctioneer to take any bidding from any such person knowingly. Where a sale by auction of land is declared subject to a right for the seller to bid, he, or any one person on his behalf, may bid at such auction in such manner as he may think proper. The practice of opening biddings by order of Chancery, except on the ground of fraud, is to be discontinued; and the Court of Chancery in England or Ireland, or the Landed Estates Court there, or the Court of Chancery in the County Palatine of Lancaster, or any court having jurisdiction in equity, is in other respects excepted from the operation of the Act. This Act does not extend to Scotland.

## THE HERRING FISHERIES (SCOTLAND) ACT, 1867.

(30 &amp; 31 Vict. c. 52.)

This Act takes effect from and after the passing thereof, and applies only to Scotland and the coasts thereof. Section 1 enacts that from and after the passing of this Act it shall be lawful to fish for and take herrings and herring fry in any manner of way, and by means of any kind of net having meshes of a size not less than that now permitted or required by law. Persons using nets other than as above shall be liable in a penalty of not less than 5*l.* and not exceeding 20*l.*, with forfeiture of the net. Section 2 repeals section 5 of 23 & 24 Vict. c. 92, and renders it lawful for the Commissioners to make regulations for preservation of order; and any person who commits any breach or contravention of any such regulations shall be liable to a penalty of not less than 5*l.* and not exceeding 20*l.* for every such offence; and the boat in or from which such person shall commit such breach, and all sailing, rowing, or steering gear connected therewith, may be seized and detained for such period not exceeding thirty days as the Commissioners shall determine; and the herrings in possession of the person committing such breach, and the nets, floats, buoys, and other fishing implements or apparatus used by him may be seized and forfeited. The Commissioners have power under this Act from time to time to alter and rescind any regulations made by them. All regulations made by the Commissioners under the authority of this Act, or amendments or alterations, before taking effect to be submitted to and approved by the Treasury, and published. Penalty for resisting persons under orders of naval superintendent not exceeding 50*l.*, or in default to imprisonment not exceeding sixty days. The same penalty is also imposed for resisting or obstructing any superintendent, fishery officer, or other person under their orders, in the exercise of their duty. All the powers, &c., of 23 & 24 Vict. c. 92, and 24 & 25 Vict. c. 72, are extended to this



Act; and nothing contained in it affects the provisions of 6 & 7 Vict. c. 79, or of the French Convention. Section 10 repeals the 6th section of the "Herring Fisheries Act, 1860" (section 6, 23 & 24 Vict. c. 92). For interpretation of terms, "Commissioners" shall mean Commissioners of the British white herring fishery; the word "superintendent" shall mean and include the naval superintendent appointed under the authority of the recited Acts; and "officer of the fishery" shall mean an officer of the British white herring fishery appointed in like manner. Coast of Scotland includes all bays, estuaries, arms of the sea, and all tidal waters within the distance of three miles from the main land or adjacent islands.

## PUBLIC NOTICES.

March 1. Assessors and auditors to be elected.

April 5. The returns for making the assessment of direct taxes are delivered soon after this date.

May. The election of vestrymen and auditors takes place during this month, at a time appointed by the vestry.

June 2. Members of district boards to be elected.

20. Overseers to publish notices to those qualified to vote for counties to make claims.

July. High constables, during this month, to send precepts for a return of a list of persons qualified to serve on juries.

19. Assessed taxes and poor rates due on the 5th of January must be paid on or before this day.

20. Last day for sending in claims for voting in counties.

30. Overseers to make out alphabetical lists of county and borough electors on or before the last day of the present month of all persons claiming to be registered.

Aug. 1. Borough and county lists to be affixed to doors of churches and chapels.

20. Last day for leaving with overseers objections to county and borough electors; and for service of objections



on electors in counties or their tenants. Last day to claim as borough electors.

29. Overseers to send a list of electors and of objections to the high constable, and a list of claimants and objections, and a copy of register of county voters, to clerk of peace.

31. All taxes and rates payable on March 1 must be paid on or before this day by persons claiming to be burgesses.

Sept. 1. Town clerks in boroughs to affix in public places the list of claims and objections to freemen.

#### THE AGRICULTURAL GANGS ACT.

(2) Comes into operation January 1, 1868.

(4) No child under the age of eight years shall be employed in any agricultural gang. No females shall be employed in the same agricultural gang with males. No female shall be employed in any gang under any male gangmaster unless a female licensed to act as gangmaster is also present with that gang. Any gangmaster employing any child, young person, or woman in contravention of this section, and any occupier of land on which such employment takes place, unless he proves that it took place without his knowledge, shall respectively be liable to a penalty not exceeding 20s. for each child, young person, or woman so employed.

(5) Gangmasters to be licensed.

(6) Licenses not to be granted to keepers of public-houses.

(7) Licenses to gangmasters to be granted by two or more justices in Divisional Petty Sessions, on due proof that the applicant is of good character and a fit person. The justices shall annex to their licence a condition limiting, in such manner as they think expedient, the distances within which the children employed by such gangmaster are to be allowed to travel on foot to their work, and any gangmaster violating the condition so annexed to his licence shall for each offence be liable to a penalty not exceeding 10s.

- (8) Licences to be in force for six months only.
- (12) The Act applies only to England.

AN ACT TO ESTABLISH EQUITABLE COUNCILS OF CONCILIATION  
TO ADJUST DIFFERENCES BETWEEN MASTERS AND WORKMEN.

Gives (1) power to her Majesty or Secretary of State to license councils of conciliation. (2) Councils to consist of not less than two nor more than ten masters and workmen, and a chairman. (3) Petitioners for council to elect first council.

(4) The council shall have power to hear and determine all questions of dispute and difference between masters and workmen, as set forth in the Act of the fifth year of King George IV., chapter 96, which may be submitted to them by both parties, and shall have, hold, and exercise all the powers and authority granted to arbitrators and referees. And any award the said equitable councils of conciliation and arbitration may make in any case of dispute and difference submitted to them shall be final and conclusive between the parties to such arbitration, without being subject to review or challenge by any court or authority whatever; and the said council are hereby further authorized to adjudicate upon and determine any other case of dispute or difference submitted to them by the mutual consent of master and workman or masters and workmen. But nothing in this Act contained shall authorize the said council to establish a rate of wages or price of labour or workmanship at which the workmen shall in future be paid.

(7) No counsel, solicitors, or attorneys to be allowed to attend on any hearing before the council or the committee of conciliation, unless consented to by both parties.

(9) Householders and part occupiers may demand to be registered and have a vote for the Council, and may be elected thereto; but the masters shall appoint their own portion of the council, and the workmen elect their portion of the council.

## THE CONTAGIOUS DISEASES (ANIMALS) ACT, 1867.

(9) Enacts that every inspector appointed by a local authority, on receiving information of the supposed existence of cattle plague in any place within his district, shall proceed to that place with all practicable speed and execute and discharge the powers and duties by law conferred and imposed on him as such inspector.

(10) Section 10 of the Cattle Diseases Prevention Act, 1866, shall be read and have effect as if the words "any animal affected" were therein substituted for the words "cattle affected."

(11) When an inspector finds cattle plague to exist within his district, he shall forthwith make a declaration thereof, and deliver a notice under his hand of such declaration to the occupier of the premises where the disease is found, and thereupon the same, with all lands and buildings contiguous thereto in the same occupation, shall become and be an infected place.

(12) Where an inspector makes such a declaration of the existence of cattle plague, the local authority shall inquire into the correctness thereof, and if it appears to them that cattle plague existed as declared by the inspector, they shall so determine and declare, and shall prescribe the limits of the infected place; but if it appears to them that cattle plague did not exist as declared by the inspector, and the same is certified to them in writing by one or more duly qualified veterinary surgeons, they shall so determine and declare, and thereupon the place comprised in the inspector's declaration or affected thereby shall cease to be an infected place.

(15) The inspector may order any animal to be slaughtered for the purpose of ascertaining the nature of any disease, suspected to be cattle plague, under which such animal may be labouring; and the owner of such animal shall be compensated in the manner provided by the "Cattle Diseases Prevention Act, 1866."

(18) An order of a local authority declaring a place to be an infected place shall be published by the local authority by notices posted in and near the infected place.

(21) The following rules shall have effect with respect to infected places :—

1. No animal shall be moved alive out of an infected place.
2. The hide, skin, hair, wool, horns, hoofs, or offal of any animal, or any part thereof, shall not be moved out of an infected place without a licence signed by an officer of the local authority appointed to issue licenses in that behalf, certifying either that the thing moved has not formed part of an animal affected with cattle plague, or of an animal that has been in the same shed or stable, or in the same herd or flock, or in contact with an animal so affected, or that it has been disinfected.
3. The carcase of an animal, or a single portion of raw meat weighing more than 20 lb., shall not be moved out of an infected place without a licence signed by an officer of the local authority appointed in that behalf, certifying that the carcase or meat moved is not the carcase or part of the carcase of an animal affected with cattle plague.
4. Any dung of animals, and any hay, straw, litter, or other thing commonly used for food of animals or otherwise for or about animals, shall not be moved out of an infected place without a licence signed by an officer of the local authority appointed in that behalf, certifying that the thing moved has not been in contact with or been used for or about any animal affected with cattle plague, or that it has been disinfected.

(23) The rules of this Act shall not restrict the moving of any animal or thing by railway through an infected place, such animal or thing not being stopped within the infected place.

(26) Any constable

1. May apprehend any person found committing an offence against the rules of this Act with respect to infected places, and he shall take any person so apprehended, as soon as conveniently may be, before a justice of the peace, to be examined and dealt with according to law.
2. He may require that any animal or thing moved out of an infected place, in contravention of those rules, be forthwith taken back within the limits of that place, and may enforce and execute such requisition.

(27) The local authority by whom an infected place is declared may, at any time after the expiration of twenty-eight days from the disappearance of cattle plague in that place, by order declare the place to be free from cattle plague.

(32) Notwithstanding anything in the former Acts, a local authority may withhold compensation in respect of any animal slaughtered where the owner or person having the charge of such animal has been guilty, in relation to such animal, of any act in contravention of any of the former Acts or this Act, or has failed in respect of the giving of notice of disease, or in any other respect.

(46) The Privy Council may from time to time by order regulate the landing in Great Britain of foreign animals, either as regards the port or ports or as regards the part or parts of the port or ports at which such animals may be landed.

(47) It shall be lawful for the local authority to provide, erect, and fit up proper places for the sale of such animals, lairs for and slaughter of the same, and for such purposes they may purchase or hire land or buildings.

(48) It shall be the duty of every railway or other company, and every person carrying animals for hire, to thoroughly cleanse and disinfect all pens, trucks, vehicles, and boats used for the carrying of animals, and failing this,



such company or person shall on every such occasion be deemed guilty of an offence against this Act.

(49) If any person exposes for sale in a market or fair cattle affected with pleuro-pneumonia or sheep affected with scab, he shall be deemed guilty of an offence against this Act, unless he shows that he did not know of the same being so affected, and that he could not with reasonable diligence have obtained such knowledge.

(55) Any person guilty of an offence against this Act shall for each such offence be liable to such penalty as is provided by section 27 of the "Cattle Disease Prevention Act, 1866;" and where any such offence is committed in relation to offal, dung, hay, straw, litter, or other thing, a further penalty, not exceeding £10, may be imposed in respect of every half ton in weight of such offal or other thing after the first half ton.

#### THE SEWAGE UTILIZATION ACT.

(3) Gives authority to local boards and corporate bodies to provide any works and do any act for the purpose of receiving, storing, disinfecting, or distributing sewage within their district.

(4) To purchase or take on lease any lands either within or without their district.

(5) To deal with any land held by them for the purpose of receiving, storing, disinfecting, or distributing sewage in such manner as they deem most profitable, either by leasing the same for a period not exceeding seven years for agricultural purposes, or by contracting with some person to take the whole or a part of the produce of such land, or by farming such land and disposing of the produce thereof; subject to this restriction, {that in any appropriation which may be made of land held by a sewer authority for the above purposes, care shall be taken that provision be made for receiving, storing, disinfecting, or distributing all the sewage which it is the duty of the sewer authority to cause to be disposed of in that manner.

(15) And where a sewer authority, or any corporate or other body, under any power enabling them in that behalf, or by any agreement confirmed by Parliament, has agreed with any person or persons or body of persons, corporate or unincorporate, as to the supply of all or any of the sewage of any place and the works to be made for the purpose of that supply, they may contribute to the expense of carrying into execution by such person or persons or body of persons all or any of the purposes of such agreement, and may become shareholder in any company with which any agreement in relation to the matters aforesaid has been or may hereafter be entered into by such sewer authority or corporate or other body, or to or in which the benefits and obligations of such agreement may have been or may be transferred or vested ; and all expenditure in consequence of the exercise of the power hereby conferred shall be deemed to have been incurred by such sewer authority or corporate or other body in the construction or due maintenance of the necessary sewers for carrying away the said sewage, and shall be provided for accordingly.

(17) And where the sewer authority of a district is a vestry, select vestry, or other body of persons acting by virtue of any Act of Parliament, prescription, custom, or otherwise, as or instead of a vestry or select vestry, such authority shall, for the purpose of defraying any expenses incurred in carrying into effect the "Sewage Utilization Act, 1865," issue their precept to the overseers of the parish of which they are the authority, requiring such overseers to pay over the amount specified in such precept to the sewer authority, or to their officer named in the precept, or into some bank mentioned in such precept.

The overseers shall comply with the requisitions of such precept by levying a separate rate in the same manner as if it were a rate for the relief of the poor, with this exception, that the owner of any tithes or of any tithe commutation rent-charge, or the occupier of any land used as arable, meadow, or pasture ground only, or as woodlands, market

gardens, or nursery grounds, and the occupier of any land covered with water, or used only as a canal or towing-path for the same, or as a railway constructed under the powers of any Act of Parliament for public conveyance, shall, where a special assessment is made for the purpose of such rate, be assessed in respect of such property in the proportion of one-fourth part only of the rateable value thereof: or, where no special assessment is made, shall pay in respect of the said property one-fourth part only of the rate in the pound payable in respect of houses and other property. [The Act defines the mode in which public notice of any proceedings is to be given, and in which an appeal against the same may be made.]

#### THE MASTER AND SERVANT ACT.

(4) Declares that wherever the employer or employed shall neglect or refuse to fulfil any contract of service, or the employed shall neglect or refuse to enter or commence his service according to the contract, or shall absent himself from his service, or wherever any question, difference, or dispute shall arise as to the rights or liabilities of either of the parties, or touching any misuse, misdemeanour, misconduct, ill-treatment, or injury to the person or property of either of the parties under any contract of service, the party feeling aggrieved may lay an information or complaint in writing before a justice, magistrate, or sheriff, setting forth the grounds of complaint, and the amount of compensation, damage, or other remedy claimed for the breach or nonperformance of such contract; and upon such information being laid, the justice shall issue or cause to be issued a summons or citation to the party so complained against.

(5) The time to be appointed in the summons or citation for the appearance of the party complained against shall not be less than two or more than eight days from the date of the summons or citation.

(7) On neglect or refusal to obey summons or citation, warrant to issue.

(9) Upon the hearing of any information or complaint under the provisions of this Act two justices, or the magistrate or sheriff, after due examination, by an order in writing under their respective hands, in their or his discretion, as the justice of the case requires, either shall make an abatement of the whole or part of any wages then already due to the employed, or else shall direct the fulfilment of the contract of service, with a direction of the party complained against to find forthwith good and sufficient security, by recognizance or bond, with or without sureties, to the satisfaction of a justice, magistrate, or sheriff, for the fulfilment of such contract, or else shall annul the contract, discharging the parties from the same, and apportioning the amount of wages due up to the completed period of such contract, or else where no amount of compensation or damage can be assessed, or where pecuniary compensation will not, in the opinion of the justices, magistrate, or sheriff, meet the circumstances of the case, shall impose a fine upon the party complained against, not exceeding in amount the sum of £20, or else shall assess and determine the amount of compensation or damage, together with the costs, to be made to the party complaining, inclusive of the amount of any wages abated, and direct the same to be paid accordingly; and if the order shall direct the fulfilment of the contract, and direct the party complained against to find good and sufficient security as aforesaid, and the party complained against neglect or refuse to comply with such order, a justice, magistrate, or sheriff may, if he shall think fit, by warrant under his hand, commit such party to the common jail or house of correction within his jurisdiction, there to be confined and kept until he shall so find security, but nevertheless so that the term of imprisonment, whether under one or several successive committals, shall not exceed in the whole the period of three months; provided always, that the two justices, magistrate, or sheriff may, if they or he think fit, assess and determine the



amount of compensation or damage to be paid to the party complaining, and direct the same to be paid, whether the contract is ordered by them or him to be annulled or not, or, in addition to the annulling of the contract of service and discharge of the parties from the same, may, if they or he think fit, impose the fine as herein-before authorized; but they or he shall not under the powers of this Act be authorised to annul, nor shall any provisions of this Act have the effect of annulling, any indenture or contract of apprenticeship that they or he might not have annulled, or that would not have been annulled if this Act had not been passed.

(18) Nothing in this Act shall prevent employer or employed from enforcing their respective civil rights and remedies for any breach or nonperformance of the contract of service by any action or suit in the ordinary courts of law or equity in any case where proceedings are not instituted under this Act; nor shall anything in this Act affect the provisions of the Act of the fifth year of King George IV., chapter 96, "to consolidate and amend the laws relative to the arbitration of disputes between masters and workmen," or of any Act extending or amending the same.

(26) This Act shall continue in force until the expiration of one year after the passing thereof (Aug. 20, 1867), and to the end of the then next session of Parliament, and no longer.

---

## MEDICINES USED IN THE TREATMENT OF THE DISEASES OF SHEEP.

ALCOHOL (SPIRIT OF WINE).—In the sheep as well as in cattle, every kind of fever and every kind of inflammation is apt to take on a typhoid or malignant form, and therefore we are accustomed, even while we are combating inflammation, to add a stimulant to our purgative. The cuticular coat of the rumen, into which the greater part of the medi-



cine too often finds its way, renders it necessary to add some stimulant sufficiently to rouse this stomach to the discharge of its contents; therefore ale, gin, tincture of gentian, &c., are, in small quantities, added to the other ingredients, if the evident existence of inflammation or fever does not forbid it.

ALOES, as a purgative, is very uncertain in the sheep, and sometimes dangerous. It has been given in doses of one ounce and a half without producing the slightest effect. Two ounces have destroyed the sheep; not by superpurgation, but by direct inflammation. The tincture of aloes, however, is a very useful, stimulating, and healing application to wounds. Two ounces of powdered aloes, and a quarter of an ounce of powdered myrrh, should be macerated in a pint of rectified spirit, diluted with an equal quantity of water. This will be found particularly useful in foot-rot when the caustic has eaten away the fungus, and the chloride of lime has removed the tendency to mortification.

ALTERATIVES.—The old alterative powder for horses and cattle will be very useful in the cutaneous diseases of sheep. It is composed of Æthiop's mineral, nitre and sulphur, in the proportions of one, two, and four—about two drachms being the average dose, and to be given daily until the disease is cured.

ALUM is sometimes used as an astringent in the diarrhœa of lambs, but it is far inferior to the "sheep cordial."

ANTIMONY.—One preparation of it alone is not in any considerable repute; but in foot-rot, after the hoof has been well pared down, the foot should then be washed with a solution of chloride of lime, in the proportion of one pound of the powder to a gallon of water. The muriate or butyr of antimony must then be resorted to. There is no application comparable to this.

ARSENIC is used as a wash for sheep with scab. It is far from being an effectual application, on account of the difficulty of getting it fairly to penetrate through the wool; and when it does so penetrate, it becomes to a certain extent poisonous.

CALAMINE.—See ZINC.

CAMPHOR.—Used externally in the form of oil for strains and swellings of the joints.

CATECHU.—An extract from the wood of one of the Acacia trees; an excellent astringent. It is one of the ingredients in the "Sheep's and Calves' Cordial."

CHALK.—A valuable anti-acid, and also an ingredient in the "Sheep's Cordial."

CORROSIVE SUBLIMATE.—See MERCURY.

DIGITALIS (*Foxglove*).—A valuable sedative, and entering into almost every fever medicine.

EPSOM SALTS.—The very best purgative that can be administered to sheep, and in fact almost superseding every other; the dose from half an ounce to an ounce.

GENTIAN.—The best vegetable tonic, and also superseding every other. Dose, from one to two drachms.

GINGER.—An excellent stomachic and tonic, and forming an ingredient in almost every aperient drink. Dose, from half a drachm to a drachm.

IODINE.—Often used with good effect, in the form of ointment, to disperse indurated tumours, and particularly in the udder. The preparation of iodine thus used is the hydriodate of potash, in the proportion of one drachm of the compound to seven drachms of lard.

LEAD.—The only preparation of lead that is much used in sheep practice is the subcarbonate, or the common white lead, in order to destroy the maggots of the fly. It is superseded by the spirit of tar.

LIME.—The chloride of lime has great value as a disinfectant, and is given in small quantities to get rid of the gas in cases of hoove.

LINSEED OIL.—Used occasionally as a purgative when the Epsom salts will not act, or when great intestinal irritation is expected. Dose, from two to three ounces.

MERCURY.—The mercurial ointment, when rubbed down with from five to seven parts of lard, is a safe and almost certain cure for the scab.

*Calomel (the protochloride of mercury.)*—Seldom used in sheep practice.

*Corrosive Sublimate (the bichloride of mercury.)*—A solution of it is often employed as a wash for scab, but it is liable to the same objection as the arsenic; there is no certainty of its penetrating through the wool, and, if it does penetrate, it is a dangerous application.

MYRRH.—A valuable addition to the tincture of aloes, as an application to wounds.

NITRATE OF SILVER.—An invaluable caustic for wounds inflicted by a mad dog, or infected by any kind of poison.

NITRE.—An ingredient in the usual fever medicine; the dose rarely exceeding a drachm.

OPIUM.—An ingredient in "Sheep's and Calves' Cordial." A cholic drink would have little effect without it; and, if opium were omitted in the medicines for diarrhoea and dysentery, every other drug would be given in vain.

SALT.—The chloride of sodium, or common kitchen salt, has an excellent effect in promoting the condition of the animal when occasionally sprinkled over its food, or placed within its reach. It is the basis of every medicine that has yet been produced which really has power over the rot, and in the early stage of that disease it has often completely arrested its fatal progress.

SULPHUR is a very good aperient, in doses of from one to two ounces. It is more valuable, however, as keeping the bowels in a relaxed state when they have been opened by other medicines. Sulphur is the basis of every ointment for the cure of mange, and is useful in the common scab. It enters also into the composition of the best alterative powders.

TAR is used with butter for salving the sheep in cold and exposed situations. It is also sometimes used for marking sheep, and is a very useful dressing in foot-rot.

SPIRIT OF TAR.—A useful application to the feet in foot-rot. It has also great effect when applied to the parts that have been struck by the fly. It destroys the maggots al-

ready formed, and no fly will deposit her eggs where this liquid has been used.

OIL AND SPIRIT OF TURPENTINE.—These are often very useful applications to wounds, and especially those of long standing. They also prevent the attack of fly. Common turpentine is added to milder ointments, in order to make them somewhat stimulating, and giving them a digestive character.

ZINC.—The carbonate of it is mixed with lard, in the proportion of one drachm to seven, and makes a very excellent emollient and healing ointment.

---

## MEDICINES USED IN THE TREATMENT OF THE DISEASE OF CATTLE.

ALCOHOL.—There are two circumstances which not only render the practice of giving stimulants to cattle far more excusable than in the horse, but absolutely necessary; the first is the disposition which all the inflammatory diseases of cattle have to take on a typhoid form, and assume a malignant character—and the second is, the construction of the stomachs of these animals, in consequence of which a considerable portion of the medicine falls into the comparatively insensible paunch. Hence, inflammation having been subdued, the practitioner is always anxious to support the strength of the constitution; and even while he is combating inflammation, he cautiously adds a stimulant to the purgative, in order that he may dispose of the tissues with which that purgative may come into contact to be affected by it. Hence ginger forms an indispensable ingredient in every aperient drink; hence the recourse to wine in many cases of low fever; and hence also the foundation of, and the excuse for, the custom of adding the sound home-



brewed ale to almost every purgative, and especially for young and weakly cattle, when evident inflammatory action does not forbid it. The fiery spices and the almost undiluted spirit administered by the cowleech can never be justified; yet, in cattle-practice, the beneficial effect of the aperient often depends fully as much on the carminative by which it is accompanied, as on the purgative power of the drug itself.

**ALOES.**—This is the best, and almost the only purgative on which dependence can be placed in the treatment of the horse; but it holds a secondary rank, or might be almost dismissed from the list of cattle-aperients. It is always uncertain in its effect, and sometimes appears to be absolutely inert. Six ounces have been given without producing any appreciable effect; and, in another case, a similar dose was given, which was followed by considerable irritation and fever, but it did not purge. The animal was destroyed on the following day, in order to ascertain how far this apparent inertness might be attributed to that state of the œsophagean canal in which the greater part of the medicines administered enters the rumen, and being detained there cannot possibly produce its destined effect. A very small quantity of the drug was found in that stomach. Still, however, as there is no case on record in which it has destroyed the ox by super-purgation, as it too often has the horse, and as occasionally it does seem to exert some purgative effect, it may be admitted in combination with, or alternating with other purgatives when constipation is obstinate; few, however, would think of resorting to it in the first instance.

The Barbadoes Aloes should be selected for the horse; and, on account of the construction of the stomachs of ruminants, it must always be administered in solution, for a ball would break through the œsophagean canal and be lost in the rumen. Two ounces of aloes, and one ounce of gum-arabic (in order to suspend the imperfectly-dissolved portion of the aloes), should be put into a pint of boiling water, and the mixture frequently stirred during the first day;



then two ounces of the tincture of ginger are to be added, not only to prevent the mixture from fermenting, but because that aromatic seems to be so useful, and in a manner indispensable in cattle purgatives. The dose should consist of from half-a-pint to a pint of the solution, or from four to seven or eight drachms of the aloes. Some persons boil the aloes in the water, but the purgative effect of the drug is much lessened by this.

Aloes are very useful in the form of tincture. Eight ounces of powdered aloes and one ounce of powdered myrrh, should be put into two quarts of rectified spirit, diluted with an equal quantity of water. The mixture should be daily well shaken for a fortnight, when it will be fit for use. It is one of the best applications for recent wounds; and in old wounds especially, accompanied by any foulness of them, or discharge of fetid pus, nothing will be more serviceable than equal parts of this tincture and a solution of the chloride of lime.

ALTERATIVES.—These are medicines that are supposed to have a slow yet beneficial effect in altering some diseased action of the vessels of the skin, or of the organs of circulation or digestion. To a cow with yellows, or mange, or that cannot be made to acquire condition, or where the milk is diminishing, small quantities of medicine are often administered under the tempting, but deceptive, term of *alteratives*. They had much better be let alone in the majority of cases. If a cow is really ill, let her be treated accordingly; let her be bled or physicked, or both; but let her not be nauseated, or her constitution ruined, by continually dosing her with various drugs. The want of condition and thriving in cattle is far more connected with a diseased state of their complicated stomachs, and particularly with obstruction in the manyplus, than with any other cause; the alteratives, then, should be small quantities of purgatives, with aromatics, as Epsom salt, or sulphur with ginger; or what would be still preferable, rock salt in the manger for them to lick, or common salt mingled with their food. There can, however, be

no doubt that in many cutaneous affections, and especially where mange is suspected, alterative medicines will be very beneficial. They should be composed of Æthiop's mineral, nitre, and sulphur, in the proportions of one, two, and four, and in daily doses of from half an ounce to an ounce.

ALUM.—This is a useful astringent in diarrhœa, and especially in the purging of calves. It is best administered in the form of alum whey, which is composed of two drachms of powdered alum, dissolved in a pint of hot milk; a drachm of ginger may be added; and, if the purging is violent, a scruple of opium. Alum is rarely used externally in the treatment of cattle, unless for canker in the mouth, and as a useful wash after the tongue has been lanced in blain; and unless in the form just mentioned, the less it is used internally the better.

AMMONIA is not frequently used. In the form of harts-horn it enters into the composition of some stimulating liniments, as in cases of palsy. The carbonate of ammonia has been extolled as a specific for hoove. The author always doubted this; he put it to the test, and it failed. It was administered on a chemical principle, it being supposed that the alkali would neutralise the acid gas that was extracted from the fermenting food; but it has been proved that this gas consists chiefly either of carburetted or sulphuretted hydrogen; besides which there is another consideration, that, except administered by means of Read's pump, not one drop of the ammonia would find its way into the paunch.

ANODYNES.—The only one used in cattle-practice is opium. The doses in which it may be employed have already been pointed out when treating of the diseases in which it was indicated.

ANTIMONY.—There are but few preparations of it that can be useful to the practitioner on cattle. The first is:—

EMETIC TARTAR, which, in doses from half a drachm to a drachm, and combined with nitre and digitalis, has great

efficacy in lowering the circulation of the blood in inflammation of the lungs and every catarrhal affection, and particularly in that species of pleurisy to which cattle are so subject. Emetic tartar, rubbed down with lard, constitutes a powerful and very useful stimulant when applied to the skin.

ANTIMONIAL POWDER,—the powder of oxide of antimony with phosphate of lime. It is frequently sold in the shops under the name of James's powder, and possesses all the properties of that more expensive drug. It is a useful febrifuge in cases where it may not be advisable to nauseate the beast in too great a degree.

CHLORIDE (BUTYR) OF ANTIMONY.—Where it is wished that a caustic shall act only superficially, this is the most useful one that can be employed. It has a strong affinity for water, and therefore readily combines with the fluids belonging to the part to which it is applied, and so becomes diluted and comparatively powerless, and incapable of producing any deep and corroding mischief. It has also the advantage, that, by the change of colour which it produces, it accurately marks the extent of its action, and therefore forms an unerring guide to the surgeon. For warts, foul in the foot, cankered foot, and for some indolent and unhealthy wounds, it is a valuable caustic and stimulant.

ANTISPASMODICS.—Opium, for its general power, and particularly for its efficacy in locked jaw, stands unrivalled. The spirits of turpentine and nitrous ether, are useful in cases of colic.

ASTRINGENTS.—These are few in number, but they are powerful: alum, catechu, opium, (an astringent because it is an anodyne,) and blue vitriol comprise the list: the first used both externally and internally, the two next internally and the last internally, but chiefly powerful as arresting nasal discharge.

BLISTERS.—The thickness of the skin of cattle renders it somewhat difficult to produce any great degree of vesication. The part should be previously fomented with hot

water, then thoroughly dried, and the blistering application well rubbed in. With these precautions the common blister ointment will act very fairly; the turpentine tincture of cantharides still better; while an ointment composed by triturating one drachm of emetic tartar with six of lard, will produce more powerful and deeper irritation, but not so much actual blistering. Sometimes boiling water, and in a few cases, and especially in bony enlargements about the legs, attended by much lameness, the hot iron will be resorted to.

CALAMINE.—See ZINC.

CALOMBO.—A very useful tonic, and especially in those cases of debility which accompany or follow dysentery. It should be given in doses of from one to three drachms, combined with ginger.

CALOMEL.—See MERCURY.

CAMPHOR.—Used externally alone in cattle-practice. It is a component part in the liniments for palsy and garget.

CANTHARIDES,—the principle ingredient in all blistering ointments, and to which they owe their power. Corrosive sublimate, sulphuric acid, and euphorbium, may increase the torture of the animal, but they will generally blemish, and often lay the foundation for deep and corroding ulcers. The best blister ointment for cattle is composed of one part of cantharides (Spanish flies), finely powdered, three of lard, and one of yellow resin; the lard and the resin should be melted together, and the flies added when these ingredients begin to cool.

CARAWAYS.—The powder of these seeds may be used as an occasional change for ginger; yet it is not so stomachic as the ginger, and is decidedly inferior to it, except in cases of flatulent colic. It may be given in doses, from half an ounce to two ounces.

CASTOR OIL.—An effectual and safe purgative for cattle in doses from twelve ounces to a pint, and that will be properly employed when Epsom salt or other aperient drugs have not produced their desired effect. It is usually made



into a kind of emulsion, with the yolk of an egg. It is however to be doubted whether it is much superior to a less expensive purgative, linseed oil.

CATECHU—is an extract from the wood of one of the acacia trees. It is much less expensive than the Gum Kino, and it is, when unadulterated, more effectual than that gum in subduing the diarrhœa of calves or adult cattle. The quantity, and the drugs with which it should be combined, have been before stated.

CAUSTICS.—In the treatment of foul in the foot, these are indispensable, and the chloride (butyr), of antimony has no rival in the certainty of its destructive power being confined to the surface. For warts, angle-berries, &c., externally situated, the nitrate of silver in substance, or in the form of a strong solution, will be most effectual; for canker in the mouth, barbs, and paps, a strong solution of alum will be as useful as anything; and in order to stimulate indolent and unhealthy ulcers, nothing can compare with the diluted nitric acid.

CHALK.—See LIME.

CHAMOMILE.—If it were necessary to add another tonic to the gentian and calombo, it would be the chamomile, and on the principle of not being so powerful as either of the others, and therefore used in somewhat doubtful cases, when, if the state of fever has not quite passed over, a stronger stimulant might have been prejudicial.

CHARGES.—These are thick adhesive plasters spread over parts that have been strained or weakened, or that are affected with rheumatism, and which, being applied warm, mingle so with the hair, that they cannot be separated for a long time afterwards. They give a permanent support to the part, and likewise exert a gentle but constant stimulating power. Old cows, weakened and rendered almost useless by a rheumatic affection of the loins, which is degenerating into palsy, often derive much benefit from the application of a charge. It is also useful when the joints are the seat of rheumatic lameness.



CLYSTERS.—The importance of the administration of injections has not yet been sufficiently acknowledged in cattle-practice. A recurrence to the account which has been given of the lower or larger intestines of cattle, and which, although long, are not capacious compared with those of the horse, and whose surface is not irregular and cellated as in that animal, but perfectly smooth, so that a fluid will regularly pass along them and to their full extent, will show the propriety of having frequent recourse to this mode of administering medicine. A soothing and emollient injection may be brought into contact with the inflamed and irritable surface of these intestines; or, on the other hand, that surface may be extensively and beneficially stimulated by the direct application of purgative medicine. The former is a most important consideration in diarrhoea and dysentery; and the latter is not of less moment when the comparative insensibility of the three first stomachs of cattle is regarded. Much may be done by means of the bladder and pipe, but the newly-invented stomach and enema-pump of Read enables the practitioner to derive from injections all the advantages that can be connected with their administration.

COPPER.—There are but two compounds of this metal that have any value in cattle-practice, and they are the BLUE VITRIOL, or sulphate of copper, and VERDIGRIS, or acetate of copper. The use of the first is limited to the coryza, or inflammation of, and defluxion from, the nose, in cattle accompanied by little or no cough or fever, and which is sometimes in a manner epidemic. The manner of administering it is—Take half a drachm each of powdered digitalis and emelic tartar, and two drachms each of nitre and sulphur—this will constitute the medium fever powder, to be given as occasion may require, and increased or diminished in quantity, according to the size and age of the beast. To these half a drachm of blue vitriol may be added.

VERDIGRIS—is employed externally only, in one of the cases of foul in the foot, in order to repress fungous growths.

It is mixed with an equal portion of sugar of lead reduced, to a fine powder, and sprinkled on the diseased surface.

**CORDIALS.**—These are destructively abused by many cow-leeches, but there is that in the structure and constitution of cattle, which will excuse their administration much oftener than in the horse. Except in extreme cases, and when their use is sanctioned by the decision of a competent veterinary practitioner, they should not extend beyond good home brewed ale, and ginger, caraways; or, perhaps, because the farmer will seldom believe that a drink for a cow can be good for anything unless it stinks of aniseed, a few drops of the oil of those seeds may be allowed. The bay-berries, and cardamon seeds, and coriander seeds, and cummin seeds, and diapente, and elecampane, and fennel seeds, and fenugreek seeds, and grains of paradise, and juniper-berries, and horse-spice, and pepper, and various other pungent aromatics that encumber the shelves and load the drinks of him of the old school, should be banished from the pharmacopœia of the rational practitioner of cattle medicine.

**CORROSIVE SUBLIMATE.**—See MERCURY.

**CROTON SEEDS.**—These can scarcely be admitted into practice on ordinary occasions, or as a usual purgative; but in cases of phrenitis, tetanus, inflammatory fever, and in those strange constipations which so often puzzle and annoy, the croton seed, in doses from ten to sixteen grains, may be allowed. The bowels having been opened, the practitioner will keep up the purgative action by means of a milder and safer aperient. The seeds should be kept in a close bottle, and when wanted, should be deprived of their shells, and pounded for use. The farina soon loses its power, and the oil is shamefully adulterated.

**DIAPHORETICS.**—The thick hide of the ox forbids us to expect much advantage from those drugs which are supposed to have their principal influence determined to the skin, and thus to increase the sensible perspiration; yet emetic tartar and sulphur are, to a considerable extent, valuable in cases of fever—and the latter most certainly in cutaneous eruption

and mange, by opening the pores of the skin, or exciting its vessels to healthy action. One, however, of the best diaphoretics is that which has been comparatively lately introduced in the general management of cattle, viz., friction applied to the skin. It needs but the slightest observation to be convinced that the health of the stall-fed beast, and its thriving and getting into condition, are materially promoted by the liberal use of the brush, and sometimes even of the curry-comb.

**DIGITALIS (Foxglove).**—The leaves of this plant, gathered about the flowering season, dried, kept in the dark, and powdered when wanted, are most valuable in diminishing the frequency of the pulse, and the general irritability of the system in cattle. A reference to the treatment of almost every febrile disease will illustrate this. The dose is from half a drachm to a drachm, with emetic tartar, nitre and sulphur, and administered twice or thrice in the day, according to the urgency of the case. The practitioner must not be alarmed at the intermittent pulse which is produced. It is by means of certain pauses and intermissions in the action of the heart, that the rapidity of the circulation is diminished when this drug is exhibited. The intermittent pulse is that which the practitioner will be anxious to obtain, and which he will generally regard as the harbinger of returning health.

**DIURETICS.**—These, fortunately, are not so much used in cattle practice as in that of the horse; they are, however, allowable and beneficial in swelled legs, foul in the foot, and all dropsical affections, while they advantageously alternate with other medicines in the treatment of mange and all cutaneous affections, and in cases of mild or chronic fever. Nitre and liquid turpentine are the best diuretics, and almost the only ones on which dependence can be placed. The doses have been already pointed out.

**DRINKS.**—It is needless again to explain the reason why all medicines that cannot be concealed in the food must be administered in the form of DRINKS. If they are exhibited in a solid form, they will break through the floor of the æso-

phagean canal, and enter the rumen. Farriers and cow-leeches, however, often give to their drinks the force and momentum of a ball, by the large vessels from which they are poured all at once down the throat. There are few things of more consequence than attention to the manner in which a drink is administered.

ELDER.—The leaf of this tree is used boiled in lard. It forms one of the most soothing and suppling ointments that can be applied. The practitioner should make his own elder ointment, for he will often receive from the druggist an irritating unguent formed of lard coloured with verdigris, instead of the emollient one furnished by the elder.

EPSOM SALT.—See MAGNESIA.

FOMENTATIONS.—If, owing to the greater thickness of the skin, these are not quite so effectual in cattle as in the horse, yet, as opening the pores of the skin and promoting perspiration in the part, and thus abating local swelling, and relieving pain, and lessening inflammation, they are now exceedingly serviceable. The practitioner may use the decoction of what herbs he pleases, but the chief virtue of the fomentation depends on the warmth of the water.

GENTIAN.—An excellent stomachic and tonic, whether at the close of illness, or as a remedy for chronic debility. Its dose varies from one to four drachms, and should be almost invariably combined with ginger.

GINGER.—The very best aromatic in the list of the cordials for cattle, and with the exception of caraways, superseding all the rest. The dose will vary from half a drachm to four drachms.

GOULARD'S EXTRACT.—See LEAD.

HELLEBORE, BLACK.—The root of it forms an excellent seton when passed through the dewlap; it produces plenty of swelling and discharge, and rarely or never runs on to gangrene.

IODINE.—The use of this mineral is limited to a few cases, but there its effect is truly admirable. It will scarcely ever fail of dispersing enlargements of the glands, or hardened



tumours, whether under or at the side of the jaw, or round the joints. One part of hydriodate of potash must be triturated with seven parts of lard, and the ointment daily and well rubbed on and round the part. Indurations of the udder seldom resist its power unless the ulcerative process has already commenced.

There is a still more important use to which this drug may be applied. It possesses some power to arrest the growth of tubercles in the lungs, and even to disperse them when recently formed. The writer of this article, (Mr. YOUATT,) says, it was not until lately that his attention had been so strongly directed to this property of iodine, and that he has had such extensive opportunities of putting it to the test. He will not say that he has discovered a specific for phthisis or consumption in cattle, but he has saved some that would otherwise have perished, and, for a while, prolonged the existence, and somewhat restored the condition of more. He would urge the proprietor of cattle, and more especially his fellow-practitioners, to study closely the symptoms of phthisis, (as detailed under that head,) to make themselves masters of the inward, feeble, painful, hoarse, gurgling cough of consumption; and as soon as they are assured that this termination or consequence of catarrh, or pneumonia, or pleurisy, begins to exist—that tubercles have been formed, and perhaps, have begun to suppurate, let them have recourse to the iodine, in the form of the hydriodate of potash, given in a small mash in doses of three grains morning and evening, at the very first commencement of the treatment, and gradually increased to six or eight grains. To this should be added proper attention to comfort, yet not too much nursing, and free access to succulent, but not stimulating food; and the medicine should be continued not only until the general condition of the beast begins to improve, but until the character of the cough has been essentially changed.

**IPECACUANHA.**—This drug is used in the composition of the Dover's, or compound ipecacuanha powder, which has been recommended by some practitioners in the treatment of



dysentery. It is thus made—"Take ipecacuanha root powdered, and opium also in powder, of each a drachm, and sulphate of potash an ounce. Rub them together to a fine powder." The dose is from two to four drachms. This, however, is not an efficient medicine for such a disease.

LARD.—This is the principal basis of all ointments.

LAUDANUM.—See OPIUM.

LEAD, SUGAR OF—(SUPERACETATE OF LEAD.)—This, mixed with subacetate of copper, (verdigris, which see,) forms a useful caustic for the destruction of fungous growths.

GOULARD'S EXTRACT—(LIQUOR PLUMBI SUPERACETATIS.)—When the skin is unbroken, this preparation of lead is completely thrown away, whether used either as a lotion to subdue inflammation, or to disperse tumours or effusions. It is principally serviceable, applied in a very dilute form, to abate inflammation of the eye.

WHITE LEAD—(SUBCARBONAS PLUMBI) is the basis of a cooling, drying ointment, used chiefly for excoriations, or superficial wounds.

LIME, CARBONATE OF LIME, CHALK.—This is a useful ingredient in all the drinks given in diarrhoea or dysentery. In every stage of these diseases there is a tendency to the fourth stomach, and perhaps in the intestines, to generate a considerable quantity of acid, than which a greater source of irritation can scarcely be imagined. The chalk, or the alkali of the chalk, will unite with this acid and neutralise it, and render it harmless. In the diarrhoea of the calf it is absolutely indispensable, for there the acid principle is frequently developed to a great degree. The dose will vary from a drachm to an ounce.

CHLORIDE OF LIME.—The list of medicines for cattle does not contain anything more valuable than this. As a disinfectant—if the walls, the floor, and the furniture of the cowhouse or stable, are twice or thrice well washed with it the sound cattle may return to the building with perfect safety, however contagious may have been the disease of those that had previously perished there. Applied to the

puudenda of the cow that has aborted, it destroys that peculiar smell which causes abortion in others, more readily than any preparation of the most powerful or nauseous ingredient. In blain, garget, foul in the foot, or sloughing ulcers of every description, it removes the fetor; and, if the process of decomposition has not proceeded too far, gives a healthy surface to the ulcers which nothing else could bring about—and, administered internally in blain, in the malignant epidemic, and in diarrhoea and dysentery, it is of essential service. In the last disease it is particularly beneficial in changing the nature of the intestinal discharge, and depriving it of its putridity and infection, and disposing the surface of the intestine to take on a more healthy character. Half an ounce of the powder, dissolved in a gallon of water, will give a solution of sufficient strength, both as a disinfectant applied to the cowhouse, and for external and internal use as it regards the animal.

LINSEED.—Nothing can compare with the linseed meal as an emollient poultice—if the ulcer is foul, a little of the chloride of lime should be mixed with it. If the object of the poultice is to bring an ulcer into a proper state of supuration, a little common turpentine may be added; but the cruelly-torturing caustics of the cowleech and the farrier should never disgrace the regular practitioner.

An excellent mash in cases of catarrh or sore throat, and as an emollient in any intestinal infection, is made by adding bran to an infusion of linseed.

LINSEED OIL.—This is little inferior to castor oil as a purgative; it is much cheaper, and it is equally safe. Where the case seems to indicate an oily purgative, and the first dose of castor oil fails, it may be followed up by smaller doses of linseed oil, until the desired effect is produced.

MAGNESIA, SULPHATE OF. EPSOM SALT.—This may be regarded as the staple purgative of cattle. It is as safe as Glaubers' salt; it is more certain, and it will dissolve in one-third of the quantity of water. The first dose of

physic should always consist of the Epsom salt, quickened in its action, in extreme cases, by the farina of the croton-nut; the purgative effect may be kept up by means of sulphur or Epsom salt, in doses of six ounces of the former, or eight ounces of the latter; as the state of the animal may seem to require. The medium dose is about a pound, with a quarter of an ounce of ginger, but a pound and a half may be given to a larger beast without the slightest danger.

MASHES are very useful in cattle practice, not so much to prepare for physic, or to get into condition, as to form a soothing and cooling substitute, when the case requires a temporary abstinence from dry and stimulating food. They may be composed, like those of the horse, of bran only, with hot or cold water, or of bran with a decoction of linseed. In cases of debility, steeped or ground oats may be mixed with the bran, or malt may be used as a substitute for the bran and oats.

MERCURY. MERCURIAL OINTMENT.—The practitioner should be very cautious in his use of this on cattle. Indeed, it is scarcely allowable except in a very diluted state, and with the common sulphur ointment, in bad cases of mange; or a small quantity may be mixed with lard for the destruction of vermin.

SULPHATE OF MERCURY, ÆTHIOP'S MINERAL.—A very useful alterative combined with sulphur and nitre, where there is any cutaneous affection. The circumstances under which it may be administered, and the doses, will be found in the preceding pages.

PROTO-CHLORIDE OF MERCURY. CALOMEL.—This should rarely be given to cattle, and never as a purgative. In chronic inflammation of the liver, it often has a decidedly injurious effect; in jaundice, caused by a ball-stone obstructing the biliary ducts, or in that of a more chronic nature accompanied by debility and a declining condition, the experience of the writer will not warrant him in recommending the administration of calomel; he would, on the contrary,

be disposed to confine its use to dysentery, in which, confined and guarded by opium, irritation is allayed, while the natural action of the bowels is promoted.

**BICHLORIDE OF MERCURY. CORROSIVE SUBLIMATE.**—This drug may almost be dispensed with by the practitioner on cattle. It can never be administered internally; it is highly dangerous used externally in considerable or efficient quantity for the cure of mange or any cutaneous eruption, and as a caustic there are many as good.

**MINT.**—An infusion or decoction of this plant will be a useful vehicle in which other medicines may be administered for the cure of diarrhœa or colic.

**MYRRH.**—The tincture of myrrh is a useful application to wounds, and is also applied to the cankered mouth; but it contains nothing to render it preferable to the tincture of aloes in the former case, or a solution of alum in the latter.

**NITRE.**—See **POTASH.**

**NITROUS ETHER, SPIRIT OF.**—A favourite medicine with many practitioners in the advanced stages of fever. It is said to rouse, to a certain degree, the exhausted powers of the animal, while it rarely brings back the dangerous febrile action that was subsiding. It is not, however, a stimulant to which the author has often dared to have recourse, except in the advanced stages of epidemic catarrh, or the malignant epidemic. The dose should not exceed half an ounce.

**NUX VOMICA.**—This is not introduced from any experience which the writer has had of its efficacy, but from the favourable opinion which some continental veterinarians have expressed of it in the cure of palsy. The doses which they gave consisted of more than an ounce. The author has tried the nux vomica, and its essential principle, the strychnine, as a cure for palsy in the dog, but never with success.

**OPIUM.**—As an antispasmodic, an allayer of irritation, and an astringent because it does allay irritation, opium



stands unrivalled. It is that on which the chief, or almost the only dependence is placed in locked jaw. A colic drink would lose the greater part of its efficacy without it; and if it were left out of the medicines for diarrhoea and dysentery, almost every other drug would be administered in vain. It is most conveniently given in the form of powder, and held in suspension with other medicines in thick gruel.

The tincture of opium (laudanum), is useful in inflammation of the eyes; a poultice of linseed meal made with a decoction of poppy-heads, often has admirable effect when applied to irritable ulcers or to parts labouring under much inflammation.

PITCH.—This is only useful as the principal ingredient in charges, so useful in cases of palsy, or sprain, or chronic local debility.

POTASH, NITRATE OF. NITRE.—As useful to cattle as to the horse. It has an immediate effect in abating inflammation, and it is a mild diuretic. The dose would vary from two to four drachms. When dissolved in water it much lowers the temperature of that fluid, and therefore the solution, applied immediately after it is made, forms an excellent application in cases of sprains, or where there is much superficial inflammation without any lesion of the skin. Combined with antimonial powder, or emetic tartar and digitalis, it forms an almost indispensable ingredient in every fever drink.

SULPHATE OF POTASH.—An ingredient in the Dover's powder.

POULTICES.—These are justly valued for abating inflammation, cleansing wounds, and disposing them to heal. In some cases of foul foot, and especially in that most painful, and occasional fatal variety whose immediate seat is at the division of the pasterns; also in ulcers about the throat or joints, and in garget, poultices can scarcely be dispensed with. The basis will generally be linseed meal, rendered even more soothing by opium; or to which activity may be



given by the addition of common turpentine or chloride of lime.

**RYE, ERGOT OF.**—The spurred rye has lately, and with considerable advantage, been introduced into veterinary practice in protracted or difficult parturition, in order to stimulate the uterus to renewed and increased action, when the labour pains appeared to be subsiding.

**SETONS.**—The use of setons in practice on the disease of cattle is in a manner limited to the passing of a piece of hair, rope, or of black hellebore root through the dewlap; and, as exciting inflammation in the neighbourhood of the diseased part, and thus lessening the original one, and causing a determination of blood to a greater or less extent to this new seat of irritation, they are useful both in acute and chronic inflammation of the respiratory organs. In young cattle rapidly thriving, and placed in pasture perhaps a little too luxuriant, permanent setons are highly beneficial. They act as a salutary drain, and prevent that accumulation of the circulating fluid, which is the usual cause of inflammatory fever, and other fatal complaints.

**SULPHATE OF SODA, GLAUBER'S SALT.**—A very common purgative for cattle, and a very good one, but inconvenient on account of its requiring three times its weight of water in order to dissolve it, and also on account of its so readily efflorescing when it is exposed to the atmosphere, and in its state of efflorescence or powder, becoming more purgative than when in its crystalline form. The practitioner sometimes finds it a little difficult to calculate the amount of the dose which he should give, on account of this variation in form and effect; and this may explain the occasional uncertainty of the Glauber's salt.—The Epsom salt, a very little dearer, dissolving in its own weight of water, and retaining the same form and the same purgative power under every state of the atmosphere or exposure to it, is now rapidly superseding the Glauber's.

**CHLORIDE OF SODIUM. COMMON SALT.**—The experience of almost every farmer will now confirm the benefit derived

from the mixture of salt with the food of cattle. It appears to be the natural and universal stimulus to the digestive organs of animated beings. In this place, however, its medicinal power alone is the subject of consideration. It is a purgative, second only to the Epsom salt in the first instance; and, whether from the effect of the change of medicine or of some chemical composition or decomposition which takes place, it is the surest aperient that can be given when the Epsom salt has failed; but the writer once more indignantly protests against the disgraceful, beastly menstruum in which it is frequently administered. It is a tonic as well as a purgative, and therefore perhaps somewhat objectionable in the early stage of fever. It frequently recalls the appetite more speedily than any stomachic. When a dose of it is given to the animal recovering from acute disease, debilitated, listless, careless about or refusing its food, it sometimes has an almost magical effect in creating a disposition to feed. It is a vermifuge, which, in cattle, seldom fails.

SILVER, NITRATE OF. LUNAR CAUSTIC.—Used for the destruction of warts either in its solid state, or that of a strong solution; and, from the full command which the operator has over it, and the firm eschar which it forms, is the very best caustic that can be applied to a wound inflicted by the bite of a rabid dog.

SULPHUR.—A very good aperient when the object is merely to evacuate the bowels, or when there is any cutaneous affection; but not sufficiently powerful in cases of fever; yet even there purgation, once established, may be kept up by means of it. The dose varies from eight to twelve ounces. As an alterative for hide-bound, mange, or a generally unthrifty appearance, it is excellent combined with Æthiop's mineral and nitre; and it constitutes the basis of every ointment for the cure of mange.

TONICS.—These are indicated in cases of great, and especially of chronic debility; but, administered injudiciously, they have destroyed thousands of beasts. They have done

so when they have been poured in while the fever continued, or too soon after the subsidence of the fever, and when too great a disposition to its reappearance prevailed. When disease has been once removed, the powers of nature are usually sufficient to re-establish health. Gentian, calombo, and cascarilla, are the best, and almost the only safe tonics for cattle.

TURMERIC, or coloured pea-flour, for it is seldom anything more, is fit only to give that yellow colour to cattle medicines, which long usage has accustomed the cowherd and the cowleech to consider as indispensable.

TURPENTINE.—Several of the products of the fir tree are more or less useful in the medical treatment of cattle.

TAR spread upon coarse cloth is the best covering for broken horns, and excludes both the fly and the atmospheric air. It is useful for the same purpose in cases of wounds puncturing the belly or chest. Alone, or in combination with some greasy matter, it is used to defend sore or diseased feet from becoming wet or bruised.

PITCH is the principal ingredient in charges.

COMMON LIQUID TURPENTINE is useful as a *digestive*, or to produce a healthy appearance or action in wounds, and dispose them to heal. For this purpose it is added to the linseed poultice or to the simple ointment. Some practitioners administer it as a diuretic and with good effect.

OIL, OR SPIRIT OF TURPENTINE, is applied as an external irritant either alone or in the form of a tincture of cantharides. It is administered internally in colic, and some give it in red-water, with a view to cause the debilitated blood-vessels to contract, and thus arrest the passive hemorrhage which they imagine is then taking place. From the rapidity and great extent with which it is taken up by the absorbents, and carried into the circulation, and the destructive effect which it is known to have on intestinal worms when otherwise brought into contact with them, the trial of its power would be justified in bronchitis, the too frequent and fatal

concomitant of which is the presence of thousands of worms in the air-passages.

RESIN is often used to give consistence to plasters, where the degree of irritation which it might produce is not regarded, or would be beneficial.

VINEGAR.—This used to be considered almost a specific in the distension of the rumen with gas, but on what principle it would be difficult to explain. It has also been given with manifest impropriety in cases of fever. On the thick skin of the ox it can have little preference to hot water as a fomentation, and may with no great loss be erased from the list of medicines.

WAX.—Its only use is to give consistence to ointments and plasters.

ZINC. NATIVE CARBONATE OF CALAMINE.—This is the basis of an ointment which, from its soothing, and at the same time, drying qualities, has been termed the “healing ointment.” It is useful in superficial wounds, and in deeper ones when they have been brought to a healthy character.

WHITE VITRIOL.—This is a useful tonic application to the eyes, when the inflammation has been subdued, and debility of the vessels alone remains. It is particularly useful after inflammation of the haw of the eye. Some administer it in red-water, and others in dysentery, very improperly. As a general caustic it is superseded by many others.

---

MEASURES OF LENGTH (GUNTER'S CHAIN) USED IN LAND  
SURVEYING.

7·92, or nearly 8 inches.....	= 1 link
25 links, or 198 inches .....	= 1 pole
4 poles .....	= 1 chain
10 chains, or 7,920 inches .....	= 1 furlong
8 furlongs, or 63,360 inches .....	= 1 mile

NOTE.—In provincial measurements a pole or perch in “Cheshire” is equal to 8 yards imperial; in what is called “plantation measure” it is equal to 7, and in “woodland” 6 yards. In various parts of England the “statute pole” is used. This is  $5\frac{1}{2}$  yards in length. These poles are used to measure off the lengths executed in draining, hedging, and the like. The measure of length used in Scotland for these purposes is known as the “fall of 6 ells.”

A chain is equal to 100 links, or 702 inches, or 22 yards, or 66 feet. In Scotland it is equal to 24·706 yards, and in Ireland it is equal to 28 yards.

#### MEASURES OF SURFACES, OR SQUARE MEASURE.

144	square inches .....	=	1 square foot
9	square feet .....	=	1 square yard
$40\frac{1}{4}$	square yards .....	=	1 square pole or rod
0	square poles .....	=	1 rood
4	roods .....	=	1 acre

NOTE.—An error is often made, which should be guarded against, in supposing the terms “square inches” and “inches square” to be synonymous, denoting, in fact, the same thing; but there is a great difference between them—“twelve square inches” is only the twelfth part of a square foot, but “twelve inches square” is 144 square inches.

Taking the imperial or British standard acre of 4,840 square yards as the “unity,” we find of the customary or provincial acres the following to be the proportions:—The *Scotch acre* is 1·2611; the *Cheshire acre*, 2·115; the *Laneashire acre*, 1·6252; the *Northumberland acre*, 1·2245; the *Devon acre*, ·8273; the *Irish or Plantation acre*, 1·6198; *Welsh acre*, 2 acres imperial.

#### LAND SQUARE (OR GUNTER’S CHAIN) MEASURE.

62·726	square inches .....	=	1 square link
2·295	square links .....	=	1 square foot



# lxxxviii MEASURES OF SOLID BODIES AND WEIGHTS.

20·661 square links .....	=	1 square yard
625                   ,, .....	=	1 square pole
10,000               ,, .....	=	1 square chain
2·5 square chains .....	=	1 square rood
10 square chains       ... ..	=	1 square acre
640 square acres       ... ..	=	1 square mile

NOTE.—In Scotch measurement the “square fall” is very nearly 346 square feet imperial;  $2\frac{1}{2}$  chains square or 40 falls, equal to 1 square rood; 4 square roods make 1 square acre, which is equal to  $6150\frac{1}{2}$  square yards imperial.

## CUBIC MEASURES OF SOLID BODIES.

1728 cubic inches ... ..	=	1 cubic foot
46656           ,,       or 27 cubic feet ...	=	1 solid yard
40 solid ft. of rough, or	}	... = 1 load
50 solid ft. of hewn timber		
24 solid feet       ... ..	=	1 ton shipping

NOTE.—While *square* measure is based upon the square of numbers, which is found by multiplying any number into itself, as  $4 \times 4 = 16$ , which is the square of 4, *Cubic* measure is based by multiplying any number twice into itself, as  $4 \times 4 \times 4 = 64$ , which is the cube of 4. *Surface* has only length and breadth; a *solid* body has length, breadth, and thickness.

## AVOIRDUPOIS WEIGHT.

27·343 grains... ..	=	1 dram
16 drams... ..	=	1 ounce
16 ounces       ... ..	=	1 pound
28 pounds       ... ..	=	1 quarter
4 quarters       ... ..	=	1 hundredweight
20 hundredweight   ... ..	=	1 ton
14 lb. = 1 stone; 8 stones or 112 lb.	=	1 cwt.

## HAY AND STRAW.

36 pounds	...	... = 1 truss of straw
60 pounds	...	... = 1 „ new hay
56 pounds	...	... = 1 „ old hay
36 trusses	...	... = 1 load

Weighing for old hay 18 cwt., for new hay 19 cwt. 32 lbs.,  
and for straw 11 cwt. 64 lbs.

## BREAD WEIGHT.

4 pounds is the...	...	... quartern (4 lb.) loaf
14 pounds of flour forms...	...	... 1 peck,
and is called a stone.		

## DRY MEASURES, OR MEASURES OF CAPACITY.

4 gills	...	... = 1 pint
2 pints	...	... = 1 quart
4 quarts	...	... = 1 gallon
2 gallons	...	... = 1 peck
4 pecks	...	... = 1 bushel
8 bushels	...	... = 1 quarter

## WOOL WEIGHT.

7 lb. avoirdupois make	...	... 1 clove
2 cloves or 14 lb.	...	... 1 stone
2 stones, or 28 lb.	...	... 1 tod
$6\frac{1}{2}$ tods, or 182 lbs.	...	... 1 wey
2 weys, or 364 lb.	...	... 1 sack
12 sacks ...	...	... 1 last
20 lb. ...	...	... 1 score
12 scores	...	... 1 peck

TIDE TABLE.

The following Tide Table will show the time of High Water at the outports of Great Britain and a few Foreign Ports, by adding or subtracting the numbers appended, to or from those given in the High Water Tables for London.

	h.	m.		h.	m.
Aberbeen.....sub.	0	56	Guernsey .....add	4	23
Alderney .....add	4	38	Hamburg .....do.	3	25
Antwerp .....do.	2	18	Hartlepool .....do.	1	21
Barnstaple Bar ...do.	3	23	Harwich .....sub.	2	37
Beaumaris.....sub.	3	41	Havre .....do.	4	15
Belfast .....do.	4	2	Helvoetsluys .....do.	0	7
Berwick.....add	0	11	Holyhead .....do.	4	7
Boulogne .....sub.	2	41	Hull .....add	3	53
Brighton .....do.	2	29	Ipswich.....sub.	2	7
Bristol .....add	5	8	Jersey .....add	4	3
Calais .....sub.	2	19	Leith .....do.	0	15
Cardigan Bar .....add	4	53	Liverpool .....sub.	2	45
Carmarthen Bay...do.	4	3	Margate .....do.	2	2
Chatham .....sub.	1	13	Milford Haven ...add	3	38
Cherbourg .....add	5	51	New Haven .....sub.	3	0
Cork Harbour.....do.	2	23	Nore Light .....do.	0	58
Cowes .....sub.	3	22	Penzance .....add	2	23
Dartmouth Harbour			Port Patrick .....sub.	3	7
add. ....	3	58	Portsmouth .....do.	2	27
Dieppe .....sub.	3	2	Plymouth .....add	3	26
Donegal Bar .....add	2	53	Ramsgate .....sub.	2	47
Dover Harbour ...sub.	2	57	Scarborough .....add	2	4
Dublin .....do.	2	55	Southampton ...do.	2	27
Dundee .....add	0	28	Southend & Sheer-		
Dunkirk.....sub.	1	52	ness .....sub.	1	28
Exmouth Bar.....add	4	18	Sunderland .....add	0	53
Eyemouth .....do.	0	8	Waterford.....do.	3	43
Falmouth .....do.	3	8	Whitby .....do.	1	38
Gravesend.....sub.	0	37	Yarmouth Roads sub.	5	27

## DUTY ON DOGS.

The Duty on Dogs Act, by which the old assessed tax upon dogs ceased from the 5th of April, 1867, and in lieu thereof a duty of 5s. is made payable for every dog of whatever description or denomination; this duty to be an excise duty and licence under the management of the Commissioners of Inland Revenue. Each person keeping dogs is to take out a licence for the same, which shall terminate on the 31st of December in every year. A penalty of £5 is to be incurred by every person keeping a dog without such licence. Dogs under six months old are not liable to duty.

## LANDLORD AND TENANT.

A yearly tenant must take care that he gives notice to quit his premises half a year before the time of the expiration of the current year of his tenancy. If, by agreement, a quarter's notice is to be sufficient, such notice must always expire with the tenancy if that is yearly. If a landlord neglects to repair the premises, according to his covenant, the tenant may maintain an action against him; but such neglect does not absolve the tenant from payment of the rent. A landlord can legally dispose of goods taken under a distress for rent, by appraisement, without putting them up by auction. A landlord may take possession of the goods of his tenant's lodger which have been taken away under distress for rent, or may maintain an action for pound breach.

---

From a Parliamentary return of 1867 (No. 3846), the following was the expenditure in manual and team labour, and in materials upon the roads of the parishes, townships, &c., throughout England:—

Names of Counties.	Manual Labour.	Team Labour.	Materials.	Total Expenditure.
	£	£	£	£
Bedford .....	—	—	—	—
Berks .....	2,654	1,650	1,060	7,071
Buckingham .....	7,085	1,896	6,769	19,922
Cambridge .....	6,645	3,680	8,231	22,434
Chester .....	288	81	369	975
Cornwall .....	1,087	297	466	2,630
Cumberland .....	5,735	1,239	2,339	11,089
Derby .....	8,099	3,377	3,317	19,682
Devon .....	2,207	583	634	4,099
Dorset .....	303	133	151	843
Durham .....	274	—	200	904
Essex .....	6,679	5,834	7,628	27,842
Gloucester .....	1,431	781	789	3,696
Hants .....	3,011	170	1,906	5,558
Hertford .....	819	244	303	979
Hereford .....	5,690	2,248	3,737	15,202
Huntingdon .....	24	9	104	243
Kent .....	460	209	577	1,949
Lancaster .....	15,728	6,556	9,215	41,892
Leicester .....	—	—	—	—
Lincoln .....	34,941	19,195	34,627	106,542
Middlesex .....	40,254	11,511	7,921	70,606
Monmouth .....	3,566	1,562	1,241	8,316
Norfolk .....	7,558	4,710	7,651	24,093
Northampton .....	1,404	421	934	3,177
Northumberland .....	—	—	—	—
Nottingham .....	67	46	—	238
Oxford .....	972	384	1,112	2,885
Rutland .....	2,069	618	1,652	4,805
Salop .....	766	347	219	1,596
Somerset .....	414	156	123	988
Stafford .....	8,846	3,621	3,134	20,222
Suffolk .....	3,600	1,789	6,818	14,796
Surrey .....	627	41	289	1,398
Sussex .....	8,965	5,733	6,777	27,047
Warwick .....	6,009	2,192	4,435	15,286
Westmoreland .....	2,461	527	495	3,841
Wilts .....	241	127	221	1,024
Worcester .....	2,171	838	1,143	5,545
York .....	64,722	28,913	53,250	175,177
	257,389	111,736	179,855	674,604



## BRITISH AND FOREIGN LAND MEASURES.

Countries.	Eng- lish Sq. yds.	Square yards in an Acre, in
England, Acre, . . .	4,840	Leicester . . . 2,308 $\frac{3}{4}$
Scotland, „ . . .	6,150	Hereford . . . 3,226 $\frac{2}{3}$
Ireland, „ . . .	7,840	Wilts . . . 3,630
France, Hectare . . .	11,960	Devon . . . 4,000
Prussia, Morgen . . .	3,053	Cornwall . . . 5,760
Hamburgh, „ . . .	11,545	Westmoreland . 6,760
Amsterdam, „ . . .	9,722	Cheshire . . . 1,024
Dantzic, „ . . .	6,650	

## GRAIN MEASURE.

Countries.	Bushels.	Number of equal to Eng. Qr.	Name of Measure.
England . . . . .	1·000	8·000	
Scotland . . . . .	1·022	7·827	
France . . . . .	4·427	1·807	Setier.
Holland .. . . .	3·157	2·534	Mudde.
Prussia . . . . .	1·479	5·409	Scheffel.
Spain . . . . .	1·599	5·003	Fanega.
Poland . . . . .	1·451	5·513	Korzee.
Russia . . . . .	5·750	1·390	Tchwert.

## TO FIND THE TIME OF SUNRISE.

To find the time of sunrise or sunset at any place in Great Britain or Ireland, find the latitude of the place, which any guide book, history, or map will give; and for every degree higher than 51 deg. 32 min. subtract from the time of sunrise and add to the time of sunset 9 minutes, and so on in proportion; and for every degree below 51 deg. 30 min. subtract from the time of sunrise and add to the time of sunset five minutes.

## WEIGHT OF PRODUCE PER ACRE.

Per sq. Yard.	English, 4,840 Square Yards.				Scotch, 6,150 Square Yards.				Irish, 7,840 Square Yards.	
lbs.	ton	cwt.	st.	lbs.	ton	cwt.	st.	lbs.	ton	cwt.
1	2	3	1	10	2	14	7	4	3	10
2	4	6	3	6	5	9	6	8	7	0
3	6	9	5	2	8	4	5	12	10	10
4	8	12	6	12	10	19	5	2	14	0
5	10	16	0	8	13	14	4	6	17	10
6	12	19	2	4	16	9	3	10	21	0
7	15	2	4	0	19	4	3	0	24	10
8	17	5	5	10	21	19	2	4	28	0
9	19	8	7	6	24	14	1	8	31	10
10	21	12	1	2	27	9	0	12	35	0
11	23	15	2	12	30	4	0	2	38	10
12	25	18	4	8	32	18	7	6	42	0
13	28	1	6	4	35	13	6	10	45	10
14	30	5	0	0	38	8	6	0	49	0

## AVERAGE PRICES OF GRAIN.

The average prices of grain in Scotland have for many years been struck in a peculiar manner. The Sheriff of each county, during the early part of spring, empanels a jury before whom farmers and grain-dealers are examined on oath, as to the quantities of grain sold or bought of the crop of the previous autumn, and the prices of the same. According to the evidence collected in this way, an average of each kind of grain is struck by the jury; and these averages, or "Fiars Prices," as they are termed, regulate the amount of ministers' stipends, corn rents, &c.

The following are the Fiars Prices of Crop 1866, as struck by a jury in each county, during February and March 1867:—

## AVERAGE PRICES OF GRAIN.

XCV

Counties.	Wheat per qr.		Barley per qr.		Bere per qr.		Oats per qr.		Rye per qr.		Peas per qr.		Beans per qr.		Oatm'l per 140 lb.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Aberdeen . . . . .	52	8	34	6	32	6	24	0	—	—	39	1	39	4	19	7
Argyle . . . . .	49	4	33	4	32	0	27	4	—	—	—	—	45	4	20	4
Ayr . . . . .	56	8	36	5	28	0	22	10	—	—	—	—	48	1	20	4
Banff . . . . .	57	10	36	11	32	0	26	10	—	—	38	6	39	7	19	7
Berwick . . . . .	57	4	36	4	—	—	27	9	—	—	42	3	—	—	21	8
Bute . . . . .	51	6	34	10	31	6	25	3	—	—	—	—	47	0	20	6
Caithness . . . . .	—	—	32	4	30	7	24	0	—	—	—	—	—	—	20	4
Clackmannan . . . . .	57	11	36	11	—	—	27	5	—	—	43	3	43	3	21	6
Dumbarton . . . . .	55	4	32	0	30	0	26	9	—	—	47	1	47	1	21	1
Dumfries . . . . .	60	2	37	6	—	—	24	0	—	—	—	—	49	6	19	9
Edinburgh . . . . .	56	9	37	10	—	—	29	3	—	—	44	4	44	4	21	5
Elgin . . . . .	53	9	35	0	—	—	26	0	—	—	—	—	—	—	—	—
Fife . . . . .	56	4	39	1	—	—	26	3	43	4	45	4	45	4	21	3
Forfar . . . . .	54	10	37	0	30	0	25	1	32	5	39	3	39	3	22	1
Haddington . . . . .	48	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Inverness . . . . .	61	1	43	6	—	—	32	1	—	—	—	—	—	—	—	—
Kincardine . . . . .	47	11	41	1	—	—	30	3	—	—	—	—	—	—	—	—
Kinross . . . . .	57	1	39	10	34	0	27	1	23	6	—	—	—	—	22	6
Kirkcudbright . . . . .	55	6	34	6	34	1	25	11	36	0	37	3	37	3	20	4
Lanark . . . . .	50	3	34	6	—	—	23	9	—	—	—	—	—	—	21	3
Linlithgow . . . . .	57	4	38	2	—	—	25	2	—	—	—	—	—	—	19	2
Nairn . . . . .	56	11	37	5	30	7	26	9	—	—	—	—	47	11	—	—
Orkney and Zetland . . . . .	54	6	34	0	24	0	23	9	—	—	—	—	44	0	21	6
Peebles . . . . .	55	5	38	11	—	—	27	10	—	—	—	—	45	1	21	10
Perth . . . . .	57	0	37	11	—	—	26	10	—	—	—	—	—	—	22	1
Renfrew . . . . .	—	—	—	—	23	6	—	—	—	—	—	—	—	—	17	2
Ross and Cromarty . . . . .	—	—	39	5	—	—	27	8	—	—	—	—	—	—	22	1
Roxburgh . . . . .	—	—	37	11	—	—	25	10	—	—	—	—	—	—	21	10
Selkirk . . . . .	56	7	35	4	—	—	26	11	39	3	40	10	40	10	21	4
Stirling . . . . .	47	7	29	10	—	—	22	11	—	—	—	—	—	—	—	—
Sutherland . . . . .	54	6	33	8	—	—	27	8	—	—	—	—	47	9	21	4
Wigtown . . . . .	58	0	39	3	—	—	28	0	—	—	40	3	—	—	22	4
	59	8	36	3	—	—	27	2	—	—	46	8	42	7	21	8
	60	7	35	2	—	—	24	7	—	—	—	—	—	—	21	3
	56	4	37	3	—	—	25	10	—	—	42	3	42	3	21	3
	58	10	39	9	28	0	28	3	—	—	—	—	—	—	23	3
	51	10	37	0	33	0	24	10	23	4	—	—	40	0	19	4

TABLE TO CALCULATE WAGES AND OTHER PAYMENTS.

Year. £	Per M. £ s. d.	Per Week. £ s. d.	Per Day. s. d.
1	0 1 8	0 0 $4\frac{3}{4}$	0 $0\frac{3}{4}$
2	0 3 4	0 0 $9\frac{1}{4}$	0 $1\frac{1}{4}$
3	0 5 0	0 1 $1\frac{3}{4}$	0 2
4	0 6 8	0 1 $6\frac{1}{2}$	0 $2\frac{3}{4}$
5	0 8 4	0 1 11	0 $3\frac{1}{4}$
6	0 10 0	0 2 $3\frac{1}{2}$	0 4
7	0 11 8	0 2 $8\frac{1}{4}$	0 $4\frac{1}{2}$
8	0 13 4	0 3 $0\frac{3}{4}$	0 $5\frac{1}{4}$
9	0 15 0	0 3 $5\frac{1}{2}$	0 6
10	0 16 8	0 3 10	0 $6\frac{1}{2}$
11	0 18 4	0 4 $2\frac{3}{4}$	0 $7\frac{1}{4}$
12	1 0 0	0 4 $7\frac{1}{4}$	0 8
13	1 1 8	0 4 $11\frac{3}{4}$	0 $8\frac{1}{2}$
14	1 3 4	0 5 $4\frac{1}{4}$	0 $9\frac{1}{4}$
15	1 5 0	0 5 9	0 10
16	1 6 8	0 6 $1\frac{3}{4}$	0 $10\frac{1}{2}$
17	1 8 4	0 6 $6\frac{1}{4}$	0 $11\frac{1}{4}$
18	1 10 0	0 6 $10\frac{3}{4}$	0 $11\frac{3}{4}$
19	1 11 8	0 7 $3\frac{1}{2}$	1 $0\frac{1}{2}$
20	1 13 4	0 7 8	1 $1\frac{1}{4}$
30	2 10 0	0 11 6	1 $7\frac{3}{4}$
40	3 6 8	0 15 4	2 $2\frac{1}{4}$
50	4 3 4	0 19 2	2 9
60	5 0 0	1 3 $0\frac{1}{4}$	3 $3\frac{1}{4}$
70	5 16 8	1 6 $10\frac{1}{4}$	3 $10\frac{1}{4}$
80	6 13 4	1 10 $8\frac{1}{4}$	4 $4\frac{1}{2}$
90	7 10 8	1 14 $6\frac{1}{4}$	4 $11\frac{1}{4}$
100	8 6 8	1 18 $4\frac{1}{2}$	5 $5\frac{3}{4}$

## WHEAT.

The Yearly Average Prices per Qr., from 1641 to 1840  
(*J. R. A. S.*, vol. xvii., p. 3):—

A.D.	s.	d.	A.D.	s.	d.	A.D.	s.	d.	A.D.	s.	d.
1641	..	57	1	1679	..	53	4	1717	..	40	7
1642	..	60	2	1680	..	40	0	1718	..	34	6
1643	..	59	10	1681	..	41	5	1719	..	31	1
1644	..	61	3	1682	..	39	1	1720	..	32	10
1645	..	51	3	1683	..	35	6	1721	..	33	4
1646	..	42	8	1684	..	39	1	1722	..	32	0
1647	..	65	5	1685	..	41	5	1723	..	30	10
1648	..	75	6	1686	..	30	2	1724	..	32	10
1649	..	71	1	1687	..	22	4	1725	..	43	1
1650	..	68	1	1688	..	40	10	1726	..	40	10
1651	..	65	2	1689	..	26	8	1727	..	37	4
1652	..	44	0	1690	..	30	9	1728	..	48	5
1653	..	31	6	1691	..	30	2	1729	..	41	7
1654	..	23	1	1692	..	41	5	1730	..	32	5
1655	..	29	7	1693	..	60	1	1731	..	29	2
1656	..	38	2	1694	..	56	10	1732	..	23	8
1657	..	41	5	1695	..	47	1	1733	..	25	2
1658	..	57	9	1696	..	63	1	1734	..	30	9
1659	..	58	8	1697	..	53	4	1735	..	38	2
1660	..	50	2	1698	..	60	9	1736	..	35	10
1661	..	62	2	1699	..	56	10	1737	..	33	9
1662	..	65	9	1700	..	35	6	1738	..	31	6
1663	..	50	8	1701	..	33	5	1739	..	34	2
1664	..	36	0	1702	..	26	2	1740	..	45	1
1665	..	43	10	1703	..	32	0	1741	..	41	5
1666	..	32	0	1704	..	41	4	1742	..	30	2
1667	..	32	0	1705	..	26	8	1743	..	22	1
1668	..	35	6	1706	..	23	1	1744	..	22	1
1669	..	39	5	1707	..	25	4	1745	..	24	5
1670	..	37	0	1708	..	36	10	1746	..	34	8
1671	..	37	4	1709	..	69	9	1747	..	30	11
1672	..	36	5	1710	..	69	4	1748	..	32	10
1673	..	41	5	1711	..	48	0	1749	..	32	10
1674	..	61	0	1712	..	41	2	1750	..	28	10
1675	..	57	5	1713	..	45	4	1751	..	34	2
1676	..	33	9	1714	..	44	9	1752	..	37	2
1677	..	37	4	1715	..	38	2	1753	..	39	8
1678	..	52	5	1716	..	42	8	1754	..	30	9
								1792	..	43	0





The following table shows the Average Prices in England and Wales of Wheat, Barley, and Oats, per Qr., at the beginning of each month :—

Date.		Wheat.			Barley.			Oats.		
1866.		£	s.	d.	£	s.	d.	£	s.	d.
January	6..	2	6	3	1	12	9	1	3	6
February	3..	2	5	10	1	13	0	1	3	1
March	3..	2	5	7	1	14	11	1	3	5
April	7..	2	4	9	1	17	2	1	4	6
May	5..	2	5	9	1	16	3	1	5	0
June	2..	2	7	4	1	15	3	1	5	11
July	7..	2	14	6	1	15	5	1	7	7
August	4..	2	11	1	1	12	11	1	5	3
September	1..	2	9	7	1	15	1	1	5	3
October	6..	2	12	2	2	1	4	1	3	1

## AGRICULTURAL RETURNS FOR GREAT BRITAIN IN 1867.

The aggregate of these returns has just been made up, and under corn crops of all kinds there were in England and Wales, 7,941,578 acres, against 7,921,244 acres returned in 1866 ; and in Scotland, 1,367,012 acres, against 1,366,540 acres in 1866.

The land under wheat is returned for England and Wales at 3,255,917 acres, against 3,275,293 acres in 1866 ; and for Scotland at 115,118 acres, against 110,101 acres in 1866.

The number of cattle is returned for England and Wales as 4,017,790, against 3,848,435 in 1866 ; and for Scotland as 979,170, against 937,401 in 1866.

Sheep are returned for England and Wales to the number of 22,097,286, against 16,793,204 in 1866 ; and for Scotland to the number of 6,893,603 against 5,255,077 in 1866.

The large increase in the number of sheep returned in

1867 as compared with the previous year is to be accounted for by the fact that the returns in 1866 were made for the purpose of the Cattle Plague Inquiry at a date preceding the lambing season in some parts of Great Britain.

Statistical Department, Board of Trade.

## READY RECKONING OR MARKETING TABLE.

No.	2d.	2½d.	3d.	3½d.	4d.	4½d.	5d.	5½d.	6d.	6½d.	7d.	7½d.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2	0 4	0 5	0 6	0 7	0 8	0 9	0 10	0 11	1 0	1 1	1 2	1 3
3	0 6	0 7½	0 9	0 10½	1 0	1 1½	1 3	1 4½	1 6	1 7½	1 9	1 10½
4	0 8	0 10	1 0	1 2	1 4	1 6	1 8	1 10	2 0	2 2	2 4	2 6
5	0 10	1 0½	1 3	1 5½	1 8	1 10½	2 1	2 3½	2 6	2 8½	2 11	3 1½
6	1 0	1 3	1 6	1 9	2 0	2 3	2 6	2 9	3 0	3 3	3 6	3 9
7	1 2	1 5½	1 9	2 0½	2 4	2 7½	2 11	3 2½	3 6	3 9½	4 1	4 4½
8	1 4	1 8	2 0	2 4	2 8	3 0	3 4	3 8	4 0	4 4	4 8	5 0
9	1 6	1 10½	2 3	2 7½	3 0	3 4½	3 9	4 1½	4 6	4 10½	5 3	5 7½
10	1 8	2 1	2 6	2 11	3 4	3 9	4 2	4 7	5 0	5 5	5 10	6 3
11	1 10	2 3½	2 9	3 2½	3 8	4 1½	4 7	5 0½	5 6	5 11½	6 5	6 10½
12	2 0	2 6	3 0	3 6	4 0	4 6	5 0	5 6	6 0	6 6	7 0	7 6
13	2 2	2 8½	3 3	3 9½	4 4	4 10½	5 5	5 11½	6 6	7 0½	7 7	8 1½
14	2 4	2 11	3 6	4 1	4 8	5 3	5 10	6 5	7 0	7 7	8 2	8 9
28	4 8	5 10	7 0	8 2	9 4	10 6	11 8	12 10	14 0	15 2	16 4	17 6
56	9 4	11 8	14 0	16 4	18 8	21 0	23 4	25 8	28 0	30 4	32 8	35 0

## TITHE COMMUTATION.

Average value of Tithe-Rent Charge, of £100, for previous seven years, to Christmas (C. M. Willich); and Return of the Septennial Prices of each kind of Grain, per bush., as prepared for the Tithe Commissioners in each Year, from 1861 to 1867.

Seven Years ended	Value of Rent-charge.			Wheat. per bush.	Barley. per bush.	Oats. per bush.
	£	s.	d.	s. d.	s. d.	s. d.
1861.....	112	3	4¾	7 4½	4 7¼	3 2
1862.....	109	13	6	7 0¾	4 7½	3 1
1863.....	107	5	2	6 8¾	4 7½	3 0
1864.....	103	3	10¾	6 3½	4 5¾	2 11¼
1865.....	98	15	10½	6 0	4 3½	2 10
1866.....	97	7	9½	5 11½	4 2¼	2 9½
1867.....	98	13	3¼	6 0¾	4 3	2 9¾

UNITED KINGDOM.—LAND UNDER CROPS, 1866.

Divisions.	Population 1861.	Area in acres.	Fallow and grass.	Corn crops.	Green crops.
England .....	18,954,444	32,590,397	22,261,833	7,400,170	2,750,008
Wales .....	1,111,780	4,734,486	2,284,674	521,074	139,265
Scotland .....	3,062,294	19,639,377	4,158,360	1,366,540	663,257
Ireland .....	5,798,997	20,322,641	15,549,796	2,173,433	1,482,091
Isle of Man.....	143,447	226,684	115,258	32,449	20,399
Total, U. Kingdom	29,070,932	77,513,585	44,369,921	11,493,666	5,055,020

UNITED KINGDOM,—ACREAGE UNDER CROPS IN 1866.

Divisions.	Bare fallow.	Grasses under rotation.	Permanent pasture.	Estimated Cattle.	Total of Sheep as returned in 1866.
England .....	760,979	2,296,087	8,998,027	3,420,044	15,241,541
Wales .....	109,878	256,722	1,257,721	546,966	1,668,663
Scotland .....	94,080	1,141,415	893,066	968,637	5,255,077
Ireland .....	28,060	1,600,495	10,002,058	3,742,932	4,270,027
Isle of Man, &c.	11,231	29,400	21,729	37,700	57,685
Total, U. King.	1,004,278	5,324,119	21,172,601	8,716,279	26,375,993

AGRICULTURAL HOLDINGS IN IRELAND.

ULSTER.	Under £4.	Under £8.	Over £50.	Total.
Antrim and Armagh.....	8,895	11,595	2,191	49,321
Cavan.....	4,889	6,207	370	21,647
Donegal.....	17,290	7,792	548	33,165
Down.....	5,292	7,699	1,797	32,010
Fermanagh .....	2,525	3,742	434	14,517
Londonderry .....	4,650	5,165	576	19,516
Monahan .....	3,990	6,235	345	20,349
Tyrone .....	7,527	9,186	557	31,421

## IRELAND.

The Area under the several Crops in 1866 was as under:—

	Acres.		Acres.
Wheat.....	300,474	Mangel and Beet Root ..	20,218
Oats.....	1,697,648	Cabbage .....	36,446
Barley.....	150,538	Carrots, Parsnips, and	
Bere and Rye .....	9,992	other Green Crops ..	26,791
Beans and Peas .....	14,781	Vetches and Rape .....	31,096
Potatoes .....	1,050,419	Flax .....	263,659
Turnips .....	317,121	Meadow and Clover ....	1,600,495

ACREAGE UNDER GREEN CROPS IN SCOTLAND AND IRELAND  
IN 1857 AND 1866.

Description of Crops, &c.	Scotland.		Ireland.	
	1857.	1866.	1857.	1866.
Potatoes .....	139,819	143,426	1,146,647	1,050,419
Turnips and Swedes ....	476,691	478,990	350,047	317,121
Mangold .....	2,803	852	21,449	20,218
Carrots .....	1,401	916	8,667	3,781
Cabbage, Kohl Rabi, and				
Rape .....	3,736	5,075	43,471	50,352
Vetches, Lucerne, &c., (ex-				
cept Clover or Grass) ..	21,571	33,998	34,395	40,200

FIXED AND MOVEABLE FESTIVALS, ANNIVERSARIES, &c.

Epiphany ...	...	...	Jan.	6
Candlemas Day ...	...	...	Feb.	2
<i>Septuagesima Sunday</i> ...	...	...	„	9
<i>Quinquagesima Sunday</i> ...	...	...	Feb.	23
<i>Ash Wednesday</i> ...	...	...	„	26
St. David's Day ...	...	...	March	1
<i>1st Sunday in Lent</i> ...	...	...	March	1
St. Patrick's Day ...	...	...	„	17
Lady Day ...	...	...	„	25



<i>Palm Sunday</i>	...	...	April	5
<i>Good Friday</i> ...	...	...	"	10
EASTER SUNDAY	...	...	"	12
<i>Low Sunday</i> ...	...	...	"	19
St. George's Day	...	...	"	23
<i>Rogation Sunday</i>	...	...	May	17
<i>Ascension Day—Holy Thursday</i>	...	...	"	21
Queen Victoria born	...	...	"	24
<i>Whit Sunday</i> ...	...	...	"	31
<i>Trinity Sunday</i>	...	...	June	7
Accession of Queen Victoria	...	...	"	20
Midsummer Day	...	...	"	24
Michaelmas Day	...	...	Sept.	29
Prince of Wales born...	...	...	Nov.	9
<i>1st Sunday in Advent</i>	...	...	"	29
St. Andrew's Day	...	...	"	30
Princess of Wales born	...	...	Dec.	1
St. Thomas	...	...	"	21
CHRISTMAS DAY	...	...	"	25

## SCOTCH AND ENGLISH TERMS.

*England.*

Lady Day	...	...	March	25
Midsummer	...	...	June	24
Michaelmas Day	...	...	Sept.	29
Christmas	...	...	Dec.	25

*Scotland.*

Candlemas	...	...	Feb.	2
Whitsunday	...	...	May	15
Lammas	...	...	Aug.	1
Martinmas	...	...	Nov.	11

When a Scottish Term falls on Sunday, Monday after is considered as term day.

## MEASURES OF TIME AND MOTION.

A MEAN solar day is the mean apparent time of one revolution of the earth on its axis; and it is divided into 24 hours; an hour into 60 minutes; and a minute into 60 seconds, &c.; hence the mean daily apparent motion of the sun is 15 degrees per hour, or 1 degree in 4 minutes of time. A sidereal day is the real and invariable period of the diurnal rotation, and contains 23h. 56m. 4 and 1-10th seconds of mean solar time. A tropical year is the period of one revolution of the earth in its orbit, and contains 365d. 5h. 48m. 49.19 seconds of mean solar time. The seconds' pendulum makes 86,400 vibrations in a mean solar day at the same place on the earth's surface. A lunar day is 24h. 48m. The sidereal is 3m. 56s. less than the solar day.

## COMMERCIAL NUMBERS.

12	Articles	...	...1 Dozen.
13	Ditto	...	...1 Long Dozen.
12	Dozen	...	...1 Gross.
20	Articles	...	...1 Score.
5	Score	...	...1 Common Hundred.
6	Score	...	...1 Great Hundred.
80	Deals	...	...1 Quarter.
4	Quarters	...	...1 Hundred.
24	Sheets Paper	...	...1 Quire.
20	Ditto	...	...1 do. outside.
25	Ditto	...	...1 Printer's do.
20	Quires	...	...1 Ream.
21 $\frac{1}{2}$	Ditto	...	...1 Printer's do.
2	Reams	...	...1 Bundle.
10	Ditto	...	...1 Bale.

5 Doz. Skins Parchment 1 Roll.

90 Words in Chancery, 80 do. in Exchequer, or 72 in  
Common Law, 1 Folio.

TABLE I.

FOR LAYING OFF LAND INTO ACRE LOTS.

Length. Links.	Breadth. Links.	Length. Links.	Breadth. Links.	Length. Links.	Breadth. Links.	Length. Links.	Breadth. Links.
100	1000·0	330	303·0	560	178·5	790	126·6
105	952·4	335	298·5	565	176·9	795	125·8
110	909·1	340	294·1	570	175·4	800	125·0
115	869·5	345	289·8	575	173·9	805	124·2
120	833·3	350	285·7	580	172·4	810	123·4
125	800·0	355	281·6	585	170·9	815	122·6
130	769·2	360	277·7	590	169·5	820	121·9
135	740·7	365	274·0	595	168·0	825	121·1
140	714·2	370	270·2	600	166·6	830	120·4
145	689·6	375	266·6	605	165·2	835	119·7
150	666·6	380	263·2	610	163·9	840	119·0
155	645·2	385	259·7	615	162·6	845	118·3
160	625·0	390	256·5	620	161·3	850	117·6
165	606·0	395	253·2	625	160·0	855	116·9
170	588·2	400	250·0	630	158·7	860	116·2
175	571·4	405	246·9	635	157·4	865	115·5
180	555·5	410	243·9	640	156·2	870	114·9
185	540·5	415	240·9	645	155·0	875	114·2
190	526·3	420	238·1	650	153·8	880	113·6
195	512·8	425	235·3	655	152·6	885	112·9
200	500·0	430	232·5	660	151·5	890	112·3
205	488·1	435	229·8	665	150·3	895	111·7
210	476·2	440	227·2	670	149·2	900	111·1
215	465·3	445	224·7	675	148·1	905	110·5
220	454·5	450	222·2	680	147·0	910	109·9
225	444·1	455	219·8	685	145·9	915	109·3
230	434·7	460	217·4	690	144·9	920	108·7
235	425·6	465	215·0	695	143·8	925	108·1
240	416·6	470	212·8	700	142·8	930	107·5
245	408·3	475	210·5	705	141·0	935	106·9
250	400·0	480	208·3	710	140·8	940	106·4
255	392·3	485	206·2	715	139·0	945	105·8
260	384·6	490	204·0	720	138·8	950	105·2
265	377·4	495	202·0	725	137·9	955	104·6
270	370·3	500	200·0	730	137·0	960	104·1
275	363·7	505	198·0	735	136·0	965	103·6
280	357·1	510	196·1	740	135·1	970	103·1
285	350·9	515	194·1	745	134·2	975	102·5
290	344·8	520	192·3	750	133·3	980	102·0
295	338·9	525	190·5	755	132·4	985	101·5
300	333·3	530	188·6	760	131·6	990	101·0
305	327·8	535	186·9	765	130·7	995	100·5
310	322·6	540	185·2	770	129·8	1000	100·0
315	317·4	545	183·5	775	129·0	...	...
320	312·5	550	181·8	780	128·2	...	...
325	307·7	555	180·1	785	127·4	...	...

TABLE II.

FOR LAYING OFF LAND INTO LOTS OF ONE ROOD EACH.

Length. Links.	Breadth. Links.	Length. Links.	Breadth. Links.	Length. Links.	Breadth. Links.	Length. Links.	Breadth. Links.
100	250.0	330	75.7	560	44.6	790	31.6
105	238.1	335	74.6	565	44.2	795	31.4
110	227.2	340	73.5	570	43.8	800	31.2
115	217.4	345	72.4	575	43.4	805	31.0
120	208.3	350	71.4	580	43.1	810	30.8
125	200.0	355	70.4	585	42.7	815	30.6
130	192.3	360	69.4	590	42.3	820	30.4
135	185.2	365	68.4	595	42.0	825	30.2
140	178.6	370	67.5	600	41.6	830	30.1
145	172.4	375	66.6	605	41.3	835	29.9
150	166.6	380	65.8	610	40.9	840	29.7
155	161.3	385	64.9	615	40.6	845	29.5
160	156.2	390	64.1	620	40.3	850	29.4
165	151.5	395	63.3	625	40.0	855	29.2
170	147.0	400	62.5	630	39.6	860	29.0
175	142.8	405	61.7	635	39.3	865	28.8
180	138.8	410	60.9	640	39.0	870	28.7
185	135.1	415	60.2	645	38.7	875	28.5
190	131.6	420	59.5	650	38.4	880	28.4
195	128.2	425	58.8	655	38.1	885	28.2
200	125.0	430	58.1	660	37.8	890	28.0
205	121.9	435	57.4	665	37.5	895	27.8
210	119.0	440	56.8	670	37.3	900	27.7
215	116.2	445	56.1	675	37.0	905	27.6
220	113.6	450	55.5	680	36.7	910	27.4
225	111.1	455	54.9	685	36.4	915	27.2
230	108.7	460*	54.3	690	36.2	920	27.1
235	106.4	465	53.7	695	35.9	925	27.0
240	104.1	470	53.2	700	35.7	930	26.8
245	102.0	475	52.6	705	35.4	935	26.7
250	100.0	480	52.0	710	35.2	940	26.6
255	98.0	485	51.5	715	34.8	945	26.4
260	96.1	490	50.0	720	34.7	950	26.3
265	94.3	495	50.5	725	34.4	955	26.1
270	92.6	500	50.0	730	34.2	960	26.0
275	90.9	505	49.5	735	34.0	965	25.9
280	89.3	510	49.0	740	33.7	970	25.7
285	87.7	515	48.5	745	33.5	975	25.6
290	86.2	520	48.1	750	33.3	980	25.5
295	84.7	525	47.6	755	33.1	985	25.3
300	83.3	530	47.1	760	32.9	990	25.2
305	81.9	535	46.7	765	32.6	995	25.1
310	80.6	540	46.3	770	32.4	1000	25.0
315	79.3	545	45.8	775	32.2	...	...
320	78.1	550	45.4	780	32.0	...	...
325	76.9	555	45.0	785	31.8	...	...

TABLE III.

FOR LAYING OFF LAND INTO LOTS OF TEN FALLS EACH.

Length Links.	Breadth Links.	Length Links.	Breadth Links.	Length Links.	Breadth Links.	Length Links.	Breadth Links.
100	62.5	330	18.9	560	11.1	790	7.9
105	59.5	335	18.6	565	11.0	795	7.8
110	56.8	340	18.3	570	10.9	800	7.8
115	54.3	345	18.1	575	10.8	805	7.7
120	52.1	350	17.8	580	10.7	810	7.7
125	50.0	355	17.6	585	10.6	815	7.6
130	48.0	360	17.3	590	10.5	820	7.6
135	46.3	365	17.1	595	10.5	825	7.5
140	44.6	370	16.9	600	10.4	830	7.5
145	43.1	375	16.6	605	10.3	835	7.4
150	41.6	380	16.4	610	10.2	840	7.4
155	40.3	385	16.2	615	10.1	845	7.3
160	39.0	390	16.0	620	10.0	850	7.3
165	37.8	395	15.8	625	10.0	855	7.2
170	36.7	400	15.6	630	9.9	860	7.2
175	35.7	405	15.4	635	9.8	865	7.1
180	34.7	410	15.2	640	9.7	870	7.1
185	33.8	415	15.0	645	9.6	875	7.1
190	32.9	420	14.8	650	9.6	880	7.1
195	32.0	425	14.7	655	9.5	885	7.0
200	31.2	430	14.5	660	9.4	890	7.0
205	30.4	435	14.3	665	9.3	895	6.0
210	29.7	440	14.2	670	9.3	900	6.9
215	29.0	445	14.0	675	9.2	905	6.8
220	28.4	450	13.8	680	9.1	910	6.8
225	27.7	455	13.7	685	9.1	915	6.7
230	27.1	460	13.5	690	9.0	920	6.7
235	26.6	465	13.4	695	8.9	925	6.7
240	26.0	470	13.3	700	8.9	930	6.7
245	25.5	475	13.1	705	8.8	935	6.6
250	25.0	480	13.0	710	8.8	940	6.6
255	24.5	485	12.8	715	8.7	945	6.5
260	24.0	490	12.7	720	8.6	950	6.5
265	23.5	495	12.6	725	8.6	955	6.5
270	23.1	500	12.5	730	8.5	960	6.5
275	22.7	505	12.3	735	8.5	965	6.4
280	22.3	510	12.2	740	8.4	970	6.4
285	21.9	515	12.1	745	8.3	975	6.3
290	21.5	520	12.0	750	8.3	980	6.3
295	21.1	525	11.9	755	8.2	985	6.3
300	20.8	530	11.7	760	8.2	990	6.3
305	20.4	535	11.6	765	8.1	995	6.2
310	20.1	540	11.5	770	8.1	1000	6.2
315	19.8	545	11.4	775	8.0	...	...
320	19.5	550	11.3	780	8.0	...	...
325	19.2	555	11.2	785	7.9	...	...

Any quantity of land may be easily and exactly laid off by means of the preceding Tables.—  
*Example*—A field of 5 acres is required, the length being 980 links.—Opposite 980 in Table 1,  
 is 102, the breadth for one acre,  $102 \times 5 = 510$ , within  $\frac{1}{2}$  link of 5 acres— $980 \times 510$  being = to  
 $4.99 \times 50 = 4A. 3R. 39.9P.$ —The 2nd gives Roods, and the 3rd Perches or Falls in the same way.



TABLE IV.

FOR CONVERTING SCOTCH ACRES INTO IMPERIAL ACRES,  
WITH THE PRICE PER IMPERIAL ACRE.

Scotch Acres.	Imperial Acres. Roods. Poles. Yds.				Price per Scotch Acre.	Price per Imperial Acre.		
					£	£	s.	d.
1	1	1	1	24	1	0	15	10 $\frac{1}{4}$
2	2	2	3	18	2	1	11	8 $\frac{3}{4}$
3	3	3	5	11	3	2	7	6 $\frac{1}{4}$
4	5	0	7	5	4	3	3	5
5	6	1	8	29	5	3	19	3 $\frac{1}{4}$
6	7	2	10	21	6	4	15	1 $\frac{3}{4}$
7	8	3	12	16	7	5	11	0
8	10	0	14	10	8	6	6	10 $\frac{1}{4}$
9	11	1	16	3	9	7	2	8 $\frac{3}{4}$
10	12	2	17	27	10	7	18	7
20	25	0	35	24	11	8	14	5 $\frac{1}{4}$
30	37	3	13	21	12	9	10	3 $\frac{1}{2}$
40	50	1	31	17	13	10	6	1 $\frac{3}{4}$
50	63	0	9	14	14	11	2	0
60	75	2	27	11	15	11	17	10 $\frac{1}{2}$
70	88	1	5	8	16	12	13	8 $\frac{3}{4}$
80	100	3	23	4	17	13	9	7
90	113	2	1	1	18	14	5	5 $\frac{1}{4}$
100	126	0	18	28	19	15	1	3 $\frac{1}{2}$
200	252	0	37	26	20	15	17	2
300	378	1	16	24	21	16	13	0 $\frac{1}{4}$
400	504	1	35	22	22	17	8	10 $\frac{1}{2}$
500	630	2	14	20	23	18	4	8 $\frac{3}{4}$
600	756	2	33	18	24	19	0	7
700	882	3	12	16	25	19	16	5 $\frac{1}{2}$
800	1008	3	31	15	26	20	12	3 $\frac{3}{4}$
900	1135	0	10	13	27	21	8	2

A TABLE FOR REDUCING SQUARE YARDS INTO ACRES,  
ROODS, AND PERCHES.

Sq. Yds.	R.	P.	Sq. Yds.	R.	P.	Sq. Yds.	R.	P.	Sq. Yds.	A.	R.	P.
30	0	1	1100	0	36	2500	2	3	3900	3	9	
60	0	2	1200	1	0	2600	2	6	4000	3	12	
91	0	3	1300	1	3	2700	2	9				
121	0	4	1400	1	6	2800	2	13	4100	3	16	
151	0	5	1500	1	10	2900	2	16	4200	3	19	
			1600	1	13	3000	2	19	4300	3	22	
200	0	7	1700	1	16				4400	3	25	
300	0	10	1800	1	20	3100	2	22	4500	3	29	
400	0	13	1900	1	23	3200	2	26	4600	3	32	
500	0	17	2000	1	26	3300	2	29	4700	3	35	
600	0	20				3400	2	32	4800	3	39	
700	0	23	2100	1	29	3500	2	36	4900	1	0	2
800	0	26	2200	1	33	3600	2	39	5000	1	0	5
900	0	30	2300	1	36	3700	3	2				
1000	0	33	2400	1	39	3800	3	6				

TABLE V.

FOR CONVERTING IMPERIAL INTO SCOTS MEASURE.

Imp.	Scots.	Imp.	Scots.	Imp.	Scots.		
Acres.		70	55·50356	8	·03964		
1	·79290	80	63·43264	9	·04459		
2	1·58580	90	71·36172	10	·04955		
3	2·37870	100	79·29080	15	·07432		
4	3·17160	200	158·58160	20	·09910		
5	3·96450	300	237·87240	25	·12387		
6	4·75740	400	317·16320	30	·14865		
7	5·55030	500	396·45400	35	·17342		
8	6·34320	600	475·74480	Yards.			
9	7·13610	700	555·03560		1	·000163	
10	7·92906	800	634·32640		2	·000327	
11	8·72190	900	713·61720		3	·000491	
12	9·51472	1000	792·90800		4	·000655	
13	10·30754	Roods.			5	·000819	
14	11·10036		1		0·19820	6	·000982
15	11·89362		2		·39640	7	·001146
16	12·68644	3	·59460		8	·001310	
17	13·47926	Perches			9	·001474	
18	14·27208		1		·00495	10	·001638
19	15·06490		2		·00991	15	·002457
20	15·85810		3		·01486	20	·003076
30	23·78724		4		·01982	25	·003095
40	31·71632		5		·02477	30	·004914
50	39·64540		6	·02973			
60	47·57448	7	·03468				

EXAMPLE.

Convert 155 Acres, 2 Roods, and 30 Perches Imperial into Scots.

100 Acres	=	79·29080	123·44575
50 do.	=	39·64540	4
5 do.	=	3·96450	1·78300
2 Roods	=	·39640	40
30 Perches	=	·14865	31·32000
		123·44575	36
			1·92000
			9·6000
			11·52000
A.	R.	F.	E.
123	1	31	11½ Answer.

TABLE VI.

FOR CONVERTING SCOTS INTO IMPERIAL MEASURE.

Scots.	Imperial.	Scots.	Imperial.	Scots.	Imperial.
1	1·26118	70	88·28272	7	·05518
2	2·52236	80	100·89455	8	·06306
3	3·78355	90	112·50638	9	·07094
4	5·04473	100	126·11818	10	·07882
5	6·30591	200	252·23636	15	·11823
6	7·56710	300	378·35454	20	·15764
7	8·82828	400	504·47272	25	·19705
8	10·08946	500	630·59090	30	·23646
9	11·35065	600	756·70908	35	·27587
10	12·61183	700	882·82726	Ells.	
11	13·87301	800	1008·94544	1	·00022
12	15·13419	900	1135·06362	2	·00043
13	16·39537	1000	1261·18180	3	·00065
14	17·65655	Roods.		4	·00088
15	18·91773	1	·31530	5	·00109
16	20·17871	2	·63059	6	·00131
17	21·44009	3	·94589	7	·00153
18	22·70127	Perches		8	·00175
19	23·96245	1	·00788	9	·00197
20	25·22363	2	·01576	10	·00219
30	37·83546	3	·02364	15	·00328
40	50·44726	4	·03153	20	·00438
50	63·05909	5	·03941	25	·00547
60	75·67092	6	·04729	30	·00656

EXAMPLE.

Convert 123 Acres, 1 Rood, 31 Falls, and  $11\frac{1}{2}$  Ells Scots into Imperial.

100 Acres =	126·11818	Acres ....	155·68752
20 do. =	35·22363		4
3 do. =	3·78355	Roods....	2·75008
1 Rood =	·31530		40
30 Falls =	·23646	Perches ..	30·00320
1 do. =	·00788		$30\frac{1}{4}$
10 Ells =	·00219		0·09600
$1\frac{1}{2}$ do. =	·00033		80
	155·68752	S. Yards..	0·09680
A.	R.	P.	S.Y.
155	2	30	0

Answer.

TABLE VII.

TO REDUCE SCOTS INTO IMPERIAL LINKS, ET V. V.

Scots.	Imperial.	Scots.	Imperial.
LINKS.	LINKS. TENTHS.	LINKS.	LINKS. TENTHS.
5	5·6	5	4·4
10	11·2	10	8·8
15	16·8	15	13·2
20	22·4	20	17·7
25	28·0	25	22·1
30	33·6	30	26·4
35	39·2	35	30·8
40	44·8	40	35·4
45	50·4	45	39·8
50	56·1	50	44·5
55	61·7	55	48·9
60	67·2	60	52·8
65	72·8	65	57·2
70	78·4	70	61·6
75	84·0	75	66·0
80	89·6	80	70·8
85	95·2	85	75·2
90	100·8	90	79·6
95	106·4	95	84·0
100	112·3	100	89·0
200	224·6	200	178·0
300	336·9	300	267·0
400	449·2	400	356·0
500	561·5	500	445·0
600	673·8	600	534·0
700	786·1	700	623·0
800	898·4	800	712·0
900	1010·7	900	801·0
1000	1123·0	1000	890·0

When a measurement is required to be made with a Scots chain, from a Plan laid down to Imperial, and *vice versa*, or when the measures are taken with the one, and the calculation required by the other, the above Table will be found useful, as its inspection will show.

## TABLE VIII.

OF SQUARE LINKS.

Roods.	Square Links.	Perches.	Square Links,
1	·25000	26	·16250
2	·50000	27	·16875
3	·75000	28	·17500
Perches.		29	·18125
1	·00625	30	·18750
2	·01250	31	·19375
3	·01875	32	·20000
4	·02500	33	·20605
5	·03125	34	·21250
6	·03750	35	·21875
7	·04375	36	·22500
8	·05000	37	·23125
9	·05625	38	·23750
10	·06250	39	·24375
11	·06875	Sq. Yds.	
12	·07500	1	·0002066
13	·08125	2	·0004132
14	·08750	3	·0006198
15	·09375	4	·0008264
16	·10000	5	·0010330
17	·10628	6	·0012396
18	·11250	7	·0014462
19	·11875	8	·0016528
20	·12500	9	·0018594
21	·13125	10	·0020660
22	·13750	15	·0030990
23	·14375	20	·0041320
24	·15000	25	·0051650
25	·15625	30	·0061980

Divide the number of Square Links in any quantity of ground required to be laid off by the length of the field, and the breadth is given.

The number of Square Links in any quantity of Acres is known at once, there being 100,000 in one acre.

The above table gives the Square Links in any number of Roods, Perches, and Yards.



TABLES IX.

FOR ESTIMATING THE DIFFERENCE BETWEEN THE RENT OF A SCOTS AND IMPERIAL ACRE.

*When valued by Scots.*

Scots.	Imperial.	Scots.	Imperial.	Scots.	Imperial.
<i>L</i> 1	<i>L</i> 0·79290	<i>s.</i> 1	·039645	<i>d.</i> 1	·003303
2	1·58580	2	·079290	2	·006606
3	2·37870	3	·118935	3	·009909
4	3·17160	4	·158580	4	·013212
5	3·96450	5	·198225	5	·016515
6	4·75740	6	·237870	6	·019818
7	5·55030	7	·277515	7	·023121
8	6·34320	8	·317160	8	·026424
9	7·13610	9	·356805	9	·029727
10	7·90906	10	·396450	10	·033030
				11	·036333

EXAMPLE.

Required the Rent of a Field per Imperial Acre, valued at £3 3s. per Scots Acre.

£3=£2·37870	£2 9s. 95260	} Answered—£2 9s. 11½d. 72480.
3s.= ·11893	12	
2·49763	11d. 43120	
20	4	
9s. 95260	1·72480	

*When valued by Imperial.*

Imp.	Scots.	Imp.	Scots.	Imp.	Scots.
<i>L</i> 1	<i>L</i> 1·26118	<i>s.</i> 1	·063059	<i>d.</i> 1	·005254
2	2·52236	2	·126118	2	·010508
3	3·78355	3	·189177	3	·015762
4	5·04473	4	·252236	4	·021016
5	6·30591	5	·315295	5	·026270
6	7·56710	6	·378354	6	·031524
7	8·82828	7	·441413	7	·036778
8	10·08946	8	·504472	8	·042032
9	11·35065	9	·567531	9	·047286
10	12·61183	10	·630590	10	·052540
				11	·057794

EXAMPLE.

Required the Rent of a Field per Scots Acre, valued at £2 9s. 11½d. per Imperial Acre.

£2=£2·52236	£3 2s. 95360	} Answer—£3 2s. 11½d. 7728.
9s.= ·56753	12	
11d.= ·05779	11d. 44320	
£3·14768	4	
20	1·77280	
2s. 95360		

TABLE X.

TO REDUCE IMPERIAL LINKS INTO FEET AND INCHES.

Links.	Feet.	Inches.	Links.	Feet.	Inches.	Links.	Feet.	Inches.
1	0	7.92	34	22	5.28	67	44	2.64
2	1	3.84	35	23	1.20	68	44	10.56
3	1	11.76	36	23	9.12	69	45	6.48
4	2	7.68	37	24	5.04	70	46	2.40
5	3	3.60	38	25	0.96	71	46	10.32
6	3	11.52	39	25	8.88	72	47	6.24
7	4	7.44	40	26	4.80	73	48	2.16
8	5	3.36	41	27	0.72	74	48	10.08
9	5	11.28	42	27	8.64	75	49	6.00
10	6	7.20	43	28	4.56	76	50	1.92
11	7	3.12	44	29	0.48	77	50	9.84
12	7	11.04	45	29	8.40	78	51	5.76
13	8	6.96	46	30	4.32	79	52	1.68
14	9	2.88	47	31	0.24	80	52	9.60
15	9	10.80	48	31	8.16	81	53	5.52
16	10	6.72	49	32	4.08	82	54	1.44
17	11	2.64	50	33	0.00	83	54	9.36
18	11	10.56	51	33	7.92	84	55	5.28
19	12	6.48	52	34	3.84	85	56	1.20
20	13	2.40	53	34	11.76	86	56	9.12
21	13	10.32	54	35	7.68	87	57	5.04
22	14	6.24	55	36	3.60	88	58	0.96
23	15	2.16	56	36	11.52	89	58	8.88
24	15	10.08	57	37	7.44	90	59	4.80
25	16	6.00	58	38	3.36	91	60	0.72
26	17	1.92	59	38	11.28	92	60	8.64
27	17	9.84	60	39	7.20	93	61	4.56
28	18	5.76	61	40	3.12	94	62	0.48
29	19	1.68	62	40	11.04	95	62	8.40
30	19	9.60	63	41	6.96	96	63	4.32
31	20	5.52	64	42	2.88	97	64	0.24
32	21	1.44	65	42	10.80	98	64	8.16
33	21	9.36	66	43	6.72	99	65	4.08

TABLE XI.

DRAINAGE.

NUMBER OF RODS OF  $5\frac{1}{2}$  YARDS AT CERTAIN DISTANCES APART.

	4 Yards.	5 Yards.	6 Yards.	7 Yards.	8 Yards.	9 Yards.
Roods 1	55	44	36	31	27	24
" 2	110	88	73	62	55	48
" 3	165	132	110	94	82	73
Acres 1	220	176	146	125	110	97
" 2	440	352	293	251	220	195
" 3	660	528	440	377	330	293
" 4	880	704	586	502	440	391
" 5	1100	880	733	628	550	488
" 6	1320	1056	880	754	660	586
" 7	1540	1232	1026	880	770	684
" 8	1760	1408	1173	1005	880	782
" 9	1980	1584	1320	1131	990	880
" 10	2200	1760	1466	1257	1100	977
" 11	2420	1936	1613	1382	1210	1075
" 12	2640	2112	1760	1508	1320	1173
" 13	2860	2288	1906	1634	1430	1271
" 14	3080	2464	2053	1760	1540	1368
" 15	3300	2640	2200	1885	1650	1466
" 16	3520	2816	2346	2011	1760	1564
" 17	3740	2992	2493	2137	1870	1662
" 18	3960	3168	2640	2262	1980	1760
" 19	4180	3344	2786	2388	2090	1857
" 20	4400	3520	2933	2514	2200	1955
" 21	4620	3696	3080	2640	2310	2053
" 22	4840	3872	3226	2765	2420	2151
" 23	5060	4048	3373	2891	2530	2248
" 24	5280	4224	3520	3017	2640	2346
" 25	5500	4400	3666	3142	2750	2444
" 30	6600	5280	4400	3771	3300	2933
" 35	7700	6160	5133	4400	3850	3422
" 40	8800	7040	5866	5028	4400	3911
" 45	9900	7920	6600	5657	4950	4400
" 50	11000	8800	7333	6285	5500	4888
" 55	12100	9680	8066	6914	6050	5377
" 60	13200	10560	8800	7542	6600	5866
" 65	14300	11440	9533	8171	7150	6355
" 70	15400	12320	10266	8800	7700	6844
" 75	16500	13200	11000	9428	8250	7333
" 80	17600	14080	11733	10057	8800	7822
" 85	18700	14960	12466	10685	9350	8311
" 90	19800	15840	13200	11314	9900	8800
" 95	20900	16720	13933	11942	10450	9288
" 100	22000	17600	14666	12571	11000	9777

Fractions omitted.

TABLE XII.

DRAINAGE.

NUMBER OF RODS OF  $5\frac{1}{2}$  YARDS AT CERTAIN DISTANCES APART.

	10 Yards.	11 Yards.	12 Yards.	13 Yards.	14 Yards.	15 Yards.
Roods 1	22	20	18	16	15	14
" 2	44	40	36	33	31	29
" 3	66	60	55	50	47	44
Acres 1	88	80	73	67	62	58
" 2	176	160	146	135	125	117
" 3	264	240	220	203	188	176
" 4	352	320	293	270	251	234
" 5	440	400	366	338	314	293
" 6	528	480	440	406	377	352
" 7	616	560	513	473	440	410
" 8	704	640	586	541	502	469
" 9	792	720	660	609	565	528
" 10	881	800	733	676	628	586
" 11	968	880	806	744	691	645
" 12	1056	960	880	812	754	704
" 13	1144	1040	953	880	817	762
" 14	1232	1120	1026	947	880	821
" 15	1320	1200	1100	1015	942	880
" 16	1408	1280	1173	1083	1005	938
" 17	1496	1360	1246	1150	1068	997
" 18	1584	1440	1320	1218	1131	1056
" 19	1672	1520	1393	1286	1194	1114
" 20	1760	1600	1466	1353	1257	1173
" 21	1848	1680	1540	1421	1320	1232
" 22	1936	1760	1613	1489	1382	1290
" 23	2024	1840	1686	1556	1445	1349
" 24	2112	1920	1760	1624	1508	1408
" 25	2200	2000	1833	1692	1571	1466
" 30	2640	2400	2200	2030	1885	1760
" 35	3080	2800	2566	2369	2200	2053
" 40	3520	3200	2933	2707	2514	2346
" 45	3960	3600	3300	3046	2828	2640
" 50	4400	4000	3666	3384	3142	2933
" 55	4840	4400	4033	3723	3457	3226
" 60	5280	4800	4400	4061	3771	3520
" 65	5720	5200	4766	4400	4085	3813
" 70	6160	5600	5133	4738	4400	4106
" 75	6600	6000	5500	5076	4714	4400
" 80	7040	6400	5866	5415	5028	4693
" 85	7480	6800	6233	5753	5342	4986
" 90	7920	7200	6600	6092	5657	5280
" 95	8360	7600	6966	6430	5971	5573
" 100	8800	8000	7333	6769	6285	5866

Fractions omitted.

## TABLE XIII.

## DRAINAGE.

NUMBER OF RODS OF  $5\frac{1}{2}$  YARDS AT CERTAIN DISTANCES APART.

	16 Yards.	17 Yards.	18 Yards.	19 Yards.	20 Yards.	21 Yards.
Roods 1	13	12	12	11	11	10
„ 2	27	25	24	23	22	20
„ 3	41	38	36	34	33	31
Acres 1	55	51	48	46	44	41
„ 2	110	103	97	92	88	83
„ 3	165	155	146	138	132	125
„ 4	220	207	195	185	176	167
„ 5	275	258	244	231	220	209
„ 6	330	310	293	277	264	251
„ 7	385	362	342	324	308	293
„ 8	440	414	391	370	352	335
„ 9	495	465	440	416	396	377
„ 10	550	517	488	463	440	419
„ 11	605	569	537	509	484	460
„ 12	660	621	586	555	528	502
„ 13	715	672	635	602	572	544
„ 14	770	724	684	648	616	586
„ 15	825	776	733	694	660	628
„ 16	880	828	782	741	704	670
„ 17	935	880	831	787	748	712
„ 18	990	931	880	833	792	754
„ 19	1045	983	928	880	836	796
„ 20	1100	1035	977	926	880	838
„ 21	1155	1087	1026	972	924	880
„ 22	1210	1138	1075	1018	968	921
„ 23	1265	1190	1124	1065	1012	963
„ 24	1320	1242	1173	1111	1056	1005
„ 25	1375	1294	1222	1157	1100	1047
„ 30	1650	1552	1466	1389	1320	1257
„ 35	1925	1811	1711	1621	1540	1466
„ 40	2200	2070	1955	1852	1760	1676
„ 45	2475	2329	2200	2084	1980	1885
„ 50	2750	2588	2444	2315	2200	2095
„ 55	3025	2847	2688	2547	2420	2304
„ 60	3300	3105	2933	2778	2640	2514
„ 65	3575	3364	3177	3010	2860	2723
„ 70	3850	3623	3422	3242	3080	2933
„ 75	4125	3882	3666	3473	3300	3142
„ 80	4400	4141	3911	3705	3520	3352
„ 85	4675	4400	4155	3936	3740	3561
„ 90	4950	4658	4400	4168	3960	3771
„ 95	5225	4917	4644	4400	4180	3980
„ 100	5500	5176	4888	4631	4400	4190

Fractions omitted.



## TABLE XIV.

## DISTANCES OF DRAINS.

Width of Land or Ridge.	No. of turns of the Plough (18 in. wide) to the land.	Some of the Districts in which the respective widths of Ridge are in common use.	General character of the Soil.	Distance from Drain to Drain, in common use.
ft. in. 7 6	5	Common in the county of Essex.	Tenacious and uniform clay.	7 ft. 6 in., 15 ft., 21 ft., or every furrow, every other furrow, every third furrow, &c.
16 6	11	Parts of Surrey, Sussex, Kent, Middlesex, &c.	Same as above, fine and silthling clays, with beds of fine sand interspersed.	Drains 1 rod apart.
18 0	12	Parts of Yorkshire, Northumberland, South of Scotland, &c.	Clays, containing coarse sand and grit, interspersed with shale and slate fragments.	Drains 18 ft. or 1 rod (Scotch measure) apart.
21 0	14	Common in the above and the Midland Counties, &c.	Calcareous soils and clays, lighter than the above, with frequent intermixtures of sand and gravel.	Drains 21 ft. apart.
24 0	16	Very common in the Midland Counties, and the Highlands.	Clays, similar to the above, with rotten sandstone rock and more frequent intermixtures of gravel, &c.	Drains 24 ft. apart.
30 0	20	Very generally adopted in the lighter clays throughout the country.	The lighter description of clays and clay gravels.	Drains 30 ft. apart.
33 0	22	Parts of Berkshire, Herts, Suffolk, Cambridgeshire, &c.	Chalk districts, stone, brush, gravelly, and sandy soils, and the lighter description of lands, usually springy soils.	Drains 33 ft. or 2 rods apart.
36 0	24	Same as above, and very general.	.....	Drains 36 ft. or 2 rods (Scotch measure) apart.

TABLE XV.  
A TABLE OF THE COST OF LAND-DRAINAGE PER ACRE.

THE differences in the quality of soils, that lead to differences in the depth and distance of the Drains, are also such as to affect the cost of digging the Drains. An increase of depth necessarily causes an increase of cost, from the mere circumstance of more earth having to be moved. But the same reason that causes Drains to be made closer, namely, the stiffness of the soil, renders them more difficult to dig, and hence increases the price of digging. This will explain how it happens, in the following Table, that the cost per rod is greater, not only as the depth increases, but as the distance of the Drains is less. Of two soils drained at the same depth, the expense of draining a rod will be least in that for which the Drains are furthest apart, which is where the soil is of the freest or least tenacious description.

Description of Soils.	Distance of Drains apart.	Depth of Drains.	Number of Yards of Drains per Acre.	Cost of cutting and filling per Chain.	Cost of cutting and filling per Acre.		Number of Drain Pipes of 12 in. long required per Acre.	Cost of Drain Tiles per Acre, at 30s. per 1000.		Total Cost per Acre.	
					£	s. d.		£	s. d.	£	s. d.
Compact or heavy Soils.	ft.	ft. in.									
	15	2 6	968	0 1 8	3	13 4	2905	4	7 2	8	0 6
	16½	2 6	880	0 1 7	3	3 4	2640	3	19 2	7	2 6
	18	2 9	807	0 1 6	2	15 1½	2420	3	12 7	6	7 8
	21	2 9	692	0 1 4	2	2 0	2076	3	2 3	5	4 3
Medium Soils.											
	22	3 0	660	0 1 8	2	10 0	1980	2	19 5	5	9 5
	24	3 0	605	0 1 6	2	1 3	1814	2	14 5½	4	15 8
	27	3 3	538	0 2 4	2	17 2	1613	2	8 4½	5	5 6½
	30	3 3	484	0 2 0	2	4 0	1452	2	3 6½	4	7 6½
Porous or light Soils.											
	33	3 6	440	0 2 10	2	16 3	1320	1	19 7	4	16 3
	36	3 9	403	0 2 8	2	9 4	1209	1	16 3	4	5 7
	39	4 0	373	0 2 6	1	19 8	1117	1	13 6	3	3 2
	42	4 0	346	0 2 4	1	16 9	1037	1	11 1½	3	7 10½
	45	4 0	325	0 2 4	1	14 5	974	1	9 2½	3	3 7½
	49½	4 3	293	0 3 4	2	5 0	880	1	7 4½	3	12 10
	55	4 3	264	0 3 0	1	16 0	792	1	3 9	2	19 9
	60	4 6	242	0 4 0	2	4 0	726	1	1 9	3	5 9
	66	4 6	220	0 3 4	1	13 4	660	0	19 9½	2	13 1½

## TABLE XVI.

## DRAINAGE.

## COMPARISON OF COSTS.

SOILS.	Depth of Drain.		Distance of Drains.	COST PER ACRE.											
				Cutting and Filing.			Materials.— Tubes, at 20s. per thousand.			Chargeable for Mains, Outfalls, Super- intendence, &c.			Total.		
	Ft.	In.	Ft.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Alluvial clay .....	3	0	21	2	1	10	2	2	0	0	18	0	5	1	10
Upland clay or till, full of stones .....	2	9	21	3	2	9	2	2	0	1	2	0	6	6	9
Compact gravelly drift, with boulder stones..	2	9	24	3	4	0	1	16	3½	1	1	0	6	1	3½
Open sand and gravel, with moorish bottom	4	0	40	3	6	0	1	1	9¼	1	2	0	5	9	9¼
Peat moss, forming its own channel .....	3	6	18	1	4	5	..	..	..	0	6	0	1	10	5

Description of Drains.	Depth of each Drain.	Width at top.	Width at bottom.	Average Width.	Running yards of Drain to the cubic yard.	Sandy Soils, light Loams, and light Clays; easy digging.		Stiffer Clay and Gravel, re- quiring some pickwork.		Hard Clay and close Soils, re- quiring pick- work.	
						At 4d. per cubic yard.		At 6d. per cubic yard.		At 9d. per cubic yard.	
	ft.	in.	in.	in.		Per yard. s. d.	Per rod. s. d.	Per yard. s. d.	Per rod. s. d.	Per yard. s. d.	Per rod. s. d.
Stone Drains.	4	0	18	8	13	2†	†	0	3	1	4½
	3	6	16	8	12	2½	—	0	2½	1	1¼
	3	0	12	8	10	3½	+	0	1½	0	8½
Pipe Tile Drains.	4	0	18	3	10½	2½	+	0	1½	0	8½
	3	6	16	3	9½	3¼		0	1½	0	10¼
	3	0	12	3	7½	5½		0	1½	0	6½

† The signs + and — imply a small fraction greater or less than the number stated.

In the price per rod, the fractional parts are reduced to the farthings nearest to them.

TABLE XVII.

Showing the Estimated Value of the Manure obtained from the Consumption of One Ton of different articles of Food ; each supposed to be of good quality of its kind.

Description of Food.								Estimated money value of Manure from 1 ton of each kind of food.		
								£	s.	d.
1.	Decorticated Cotton-seed-cake..	..	..	..	..	..	..	6	10	0
2.	Rape-cake ..	..	..	..	..	..	..	4	18	0
3.	Linseed-cake ..	..	..	..	..	..	..	4	12	0
4.	Malt-dust ..	..	..	..	..	..	..	4	5	0
5.	Lentils..	..	..	..	..	..	..	3	17	0
6.	Linseed ..	..	..	..	..	..	..	3	13	0
7.	Tares ..	..	..	..	..	..	..	3	13	6
8.	Beans ..	..	..	..	..	..	..	3	13	6
9.	Peas ..	..	..	..	..	..	..	3	2	6
10.	Locust Beans ..	..	..	..	..	..	..	1	2	6 (?)
11.	Oats ..	..	..	..	..	..	..	1	14	6
12.	Wheat ..	..	..	..	..	..	..	1	13	0
13.	Indian Corn ..	..	..	..	..	..	..	1	11	6
14.	Malt ..	..	..	..	..	..	..	1	11	6
15.	Barley ..	..	..	..	..	..	..	1	9	6
16.	Clover hay ..	..	..	..	..	..	..	2	5	0
17.	Meadow hay ..	..	..	..	..	..	..	1	10	0
18.	Oat straw ..	..	..	..	..	..	..	0	13	6
19.	Wheat straw ..	..	..	..	..	..	..	0	12	6
20.	Barley straw ..	..	..	..	..	..	..	0	10	6
21.	Potatoes ..	..	..	..	..	..	..	0	7	0
22.	Mangels ..	..	..	..	..	..	..	0	5	0
23.	Swedish Turnips ..	..	..	..	..	..	..	0	4	3
24.	Common turnips ..	..	..	..	..	..	..	0	4	0
25.	Carrots..	..	..	..	..	..	..	0	4	0

TABLE of the Diameters of Pipes through which a required quantity of Water may be discharged in a given time.

Cubic feet per minute.	Diameter in inches.	Cubic feet per minute.	Diameter in inches.	Cubic feet per minute.	Diameter in inches.
1	1	25	4 $\frac{3}{4}$	160	12 $\frac{1}{8}$
2	1 $\frac{3}{8}$	30	5 $\frac{1}{4}$	170	12 $\frac{1}{2}$
3	1 $\frac{5}{8}$	35	5 $\frac{5}{8}$	180	12 $\frac{3}{4}$
4	1 $\frac{7}{8}$	40	6	190	13 $\frac{1}{4}$
5	2 $\frac{1}{8}$	45	6 $\frac{1}{2}$	200	13 $\frac{1}{2}$
6	2 $\frac{3}{8}$	50	6 $\frac{3}{4}$	225	14 $\frac{1}{2}$
7	2 $\frac{5}{8}$	55	7 $\frac{1}{8}$	250	15 $\frac{1}{5}$
8	2 $\frac{7}{8}$	60	7 $\frac{1}{2}$	275	16
9	2 $\frac{7}{8}$	65	7 $\frac{3}{4}$	300	16 $\frac{5}{8}$
10	3	70	8	350	18
11	3 $\frac{1}{5}$	80	8 $\frac{5}{8}$	400	19 $\frac{1}{4}$
12	3 $\frac{1}{4}$	90	9 $\frac{1}{2}$	440	20 $\frac{1}{8}$
13	3 $\frac{1}{2}$	100	9 $\frac{5}{8}$	529	22
14	3 $\frac{5}{8}$	110	10	625	24
15	3 $\frac{3}{4}$	120	10 $\frac{1}{2}$	729	26
16	3 $\frac{7}{8}$	130	11	841	28
18	4	140	11 $\frac{3}{8}$	900	29
20	4 $\frac{1}{4}$	150	11 $\frac{3}{4}$	1000	30

## TABLE XVII.—(Continued.)

## PRICES OF WOOL.

	Laid Cheviot Wool.				Laid Cross Wool.				Laid Blackfaced Wool.						
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.			
1818	40	0	to	42	0	not quoted.			20	0	to	22	6		
1819	21	0	...	22	0	...			10	0	...	10	3		
1820	20	0	...	22	0	...			9	0	...	10	0		
1821	18	0	...	20	0	...			9	0	...	10	0		
1822	12	0	...	14	6	...			5	0	...	6	6		
1823	9	6	...	10	6	...			5	0	...	5	9		
1824	13	6	...	15	0	...			6	0	...	6	3		
1825	10	6	...	22	0	...			10	0	...	10	6		
1826	11	0	...	14	0	13	0	to	14	0	5	0	...	5	6
1827	11	0	...	14	0	not quoted.			5	6	...	6	9		
1828	8	0	...	11	0	...			5	6	...	6	0		
1829	8	6	...	11	0	...			4	3	...	0	0		
1830	9	6	...	11	0	6	0	...	7	6	4	6	...	5	0
1831	17	0	...	20	6	13	6	...	14	6	7	6	...	8	6
1832	14	0	...	16	0	10	0	...	12	0	7	0	...	7	6
1833	18	0	...	20	9	14	0	...	16	0	10	0	...	11	0
1834	21	0	...	24	6	16	0	...	0	0	5	6	...	7	0
1835	19	0	...	20	6	14	0	...	15	0	9	6	...	10	3
1836	21	0	...	25	0	14	0	...	16	0	10	0	...	14	0
1837	12	0	...	14	0	not quoted.			7	0	...	7	3		
1838	19	0	...	22	6	15	0	...	16	0	9	0	...	10	0
1839	18	0	...	20	0	12	0	...	13	0	8	0	...	12	0
1840	15	0	...	0	0	not quoted.			7	0	...	0	0		
1841	15	0	...	16	9	...			6	0	...	7	6		
1842	12	6	...	14	0	...			not quoted.						
1843	9	0	...	11	6	7	0	...	8	0	5	0	...	6	0
1844	15	0	...	18	0	not quoted.			not quoted.						
1845	14	6	...	17	6	...			7	6	...	8	6		
1846	12	0	...	14	6	8	9	...	11	6	8	0	...	8	6
1847	12	6	...	14	0	not quoted.			not quoted.						
1848	9	6	...	11	0	...			4	9	...	0	0		
1849	12	0	...	16	6	10	0	...	11	0	6	0	...	6	3
1850	15	0	...	17	6	not quoted.			8	0	...	8	6		
1851	12	0	...	16	0	...			8	0	...	9	3		
1852	13	0	...	15	0	...			8	0	...	9	0		
1853	19	0	...	22	0	16	6	...	18	0	11	0	...	12	6
1854	12	0	...	15	0	10	0	...	11	6	7	6	...	8	6
1855	14	6	...	19	0	12	9	...	14	6	8	6	...	9	0
1856	19	0	...	21	6	not quoted.			11	0	...	0	0		
1857	19	0	...	24	0	...			13	0	...	14	3		
1858	15	0	...	17	0	...			8	9	...	10	0		
1859	18	6	...	24	6	16	0	...	18	0	10	9	...	11	6
1860	22	0	...	32	0	13	0	...	0	0	10	0	...	11	3
1861	19	0	...	27	0	not quoted.			not quoted.						
1862	18	6	...	26	0	...			11	6	...	16	0		
1863	25	6	...	31	0	19	0	...	26	0	15	3	...	17	6
1864	31	0	...	39	0	not quoted.			17	6	...	20	6		
1865	23	0	...	30	0	...			15	0	...	17	0		
1866	24	0	...	30	6	20	0	...	0	0	14	0	...	16	0



TABLE XVII.—(Continued.)  
PRICES OF CHEVIOT SHEEP.

	Wedders.				Ewes.				Lambs.							
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.				
1818	28	0	to	30	0	not quoted.			8	0	to	10	0			
1819	25	0	...	27	0	15	0	to	17	0	10	6	...	12	0	
1820	20	0	...	25	0	16	0	...	17	0	10	0	...	11	0	
1821	18	0	...	20	0	14	0	...	16	0	7	6	...	8	0	
1822	12	6	...	13	0	8	0	...	8	6	4	6	...	0	0	
1823	13	6	...	18	0	7	0	...	10	6	5	6	...	6	0	
1824	14	0	...	19	0	7	0	...	9	0	4	6	...	6	0	
1825	29	0	...	32	0	15	0	...	19	0	9	0	...	10	6	
1826	17	6	...	21	6	13	0	...	15	0	7	0	...	7	6	
1827	15	0	...	24	0	not quoted.			7	0	...	8	0	...	8	0
1828	18	0	...	27	6	12	0	...	15	0	7	0	...	8	3	
1829	18	0	...	24	0	12	6	...	14	0	7	0	...	8	6	
1830	15	0	...	21	0	8	0	...	11	0	6	0	...	6	9	
1831	18	0	...	25	0	9	0	...	13	0	7	0	...	8	0	
1832	19	0	...	24	0	11	0	...	16	0	7	0	...	9	0	
1833	22	0	...	31	0	13	6	...	20	0	8	0	...	11	3	
1834	22	0	...	31	0	13	6	...	21	0	9	0	...	11	6	
1835	22	0	...	27	6	18	0	...	20	6	8	0	...	11	0	
1836	24	0	...	31	6	16	0	...	19	0	9	0	...	14	0	
1837	19	0	...	28	0	14	0	...	19	0	10	0	...	13	0	
1838	23	0	...	30	6	17	0	...	22	0	12	0	...	14	0	
1839	23	0	...	31	0	14	0	...	19	0	10	0	...	13	0	
1840	24	0	...	33	0	15	0	...	23	0	7	0	...	11	6	
1841	23	0	...	30	0	13	0	...	22	0	8	0	...	12	0	
1842	22	6	...	28	0	13	0	...	17	0	7	6	...	10	0	
1843	19	0	...	25	0	8	0	...	12	0	5	0	...	8	0	
1844	21	0	...	29	0	10	0	...	16	0	8	0	...	10	6	
1845	23	0	...	33	0	13	0	...	20	0	8	0	...	13	0	
1846	24	0	...	33	6	14	6	...	21	6	10	0	...	14	6	
1847	24	0	...	35	0	13	0	...	24	0	11	6	...	15	0	
1848	23	0	...	34	6	13	0	...	23	0	11	6	...	15	0	
1849	21	0	...	30	2	12	0	...	21	0	10	0	...	14	0	
1850	20	6	...	29	6	12	0	...	20	0	8	0	...	13	0	
1851	21	6	...	31	0	13	0	...	21	0	8	9	...	14	7	
1852	21	0	...	32	0	15	0	...	23	0	8	0	...	14	0	
1853	26	6	...	38	0	17	0	...	28	6	9	0	...	17	0	
1854	25	0	...	36	0	17	0	...	26	0	9	0	...	16	6	
1855	23	6	...	36	0	15	0	...	25	0	10	0	...	17	0	
1856	22	0	...	35	6	15	6	...	24	0	11	0	...	15	0	
1857	24	0	...	36	0	14	6	...	26	0	10	6	...	14	6	
1858	24	0	...	34	6	14	0	...	24	6	10	6	...	14	0	
1859	25	0	...	34	6	16	0	...	25	0	10	3	...	14	9	
1860	26	0	...	38	0	17	6	...	27	6	12	6	...	17	6	
1861	25	0	...	38	6	16	0	...	28	0	9	0	...	16	0	
1862	27	0	...	37	6	17	6	...	28	0	10	0	...	16	0	
1863	25	0	...	38	6	19	0	...	28	6	10	6	...	16	0	
1864	31	0	...	41	0	21	0	...	31	6	14	0	...	18	0	
1865	32	6	...	44	0	22	6	...	33	6	14	6	...	20	0	
1866	37	0	...	50	0	29	0	...	42	6	15	0	...	26	0	

TABLE XVII.—(Continued.)  
PRICES OF BLACKFACED SHEEP.

	Wedders.				Ewes.				Lambs.						
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.			
1818	not quoted.				not quoted.				not quoted.						
1819	22	0	to	24	0	12	0	to	15	0	8	0	to	9	0
1820	20	0	...	23	0	15	6	...	17	0	7	0	...	8	6
1821	18	0	...	20	0	12	0	...	13	0	6	0	...	7	0
1822	11	6	...	13	6	5	6	...	6	0	4	6	...	0	0
1823	12	0	...	16	0	5	0	...	6	6	4	0	...	5	3
1824	9	6	...	13	6	6	0	...	7	0	4	0	...	5	0
1825	22	0	...	26	0	11	0	...	13	0	6	0	...	9	0
1826	15	0	...	17	0	8	0	...	9	0	4	6	...	6	0
1827	14	0	...	18	6	7	0	...	10	0	6	0	...	7	6
1828	15	0	...	18	0	8	0	...	11	9	5	0	...	7	6
1829	14	0	...	18	0	9	0	...	10	6	6	0	...	7	0
1830	9	6	...	13	0	4	0	...	6	6	4	6	...	6	0
1831	13	0	...	17	0	5	0	...	7	0	5	0	...	6	6
1832	14	0	...	18	0	7	0	...	11	0	6	0	...	7	0
1833	16	0	...	24	0	7	6	...	12	0	6	6	...	9	6
1834	16	0	...	22	0	10	0	...	13	0	6	0	...	8	6
1835	15	0	...	18	9	10	0	...	13	0	7	0	...	8	0
1836	15	0	...	21	0	9	0	...	12	0	8	6	...	11	0
1837	13	0	...	16	0	8	0	...	12	0	8	0	...	9	6
1838	15	0	...	20	6	10	0	...	13	0	not quoted.				
1839	15	0	...	22	0	10	0	...	12	0	7	0	...	8	3
1840	15	0	...	22	6	11	0	...	12	0	7	0	...	9	3
1841	16	0	...	22	0	9	0	...	11	0	6	0	...	8	0
1842	14	0	...	19	0	7	6	...	8	0	5	6	...	7	0
1843	not quoted.				4	9	...	6	6	not quoted.					
1844	15	0	...	21	0	6	6	...	10	0	5	0	...	8	0
1845	14	0	...	23	0	8	0	...	12	0	6	0	...	8	0
1846	13	0	...	24	0	10	0	...	13	0	8	0	...	9	0
1847	20	6	...	25	0	10	0	...	14	0	8	6	...	9	6
1848	20	0	...	24	0	11	3	...	12	0	8	6	...	10	0
1849	not quoted.				not quoted.				7	0	...	7	6		
1850	...				...				7	0	...	0	0		
1851	17	6	...	23	0	9	0	...	12	0	6	6	...	8	0
1852	18	6	...	22	0	9	6	...	12	0	4	6	...	7	9
1853	23	0	...	27	0	14	6	...	16	6	8	0	...	11	6
1854	20	0	...	26	0	11	0	...	16	6	8	0	...	10	6
1855	23	6	...	26	6	14	0	...	16	0	10	0	...	11	0
1856	17	0	...	24	0	10	0	...	20	0	7	6	...	10	0
1857	20	0	...	29	0	10	6	...	15	0	9	3	...	11	0
1858	20	0	...	27	6	9	9	...	18	9	8	3	...	10	6
1859	20	0	...	25	0	10	0	...	14	0	8	9	...	11	0
1860	21	0	...	27	3	11	0	...	16	0	10	0	...	13	6
1861	21	0	...	29	0	13	0	...	22	0	6	3	...	14	0
1862	16	9	...	27	0	12	0	...	18	0	6	0	...	12	0
1863	20	0	...	30	6	13	0	...	16	0	8	0	...	11	6
1864	25	0	...	30	0	15	0	...	19	0	10	0	...	13	6
1865	15	6	...	32	6	15	0	...	25	0	10	0	...	17	0
1866	31	6	...	40	0	20	0	...	36	0	13	6	...	22	6

The veering of wind "with the sun," or "right-handed," as a sailor would say, foretells drier or better weather, and that its "backing against the sun," or "left-handed," indicates rain or wind, or both together.

A pale yellow sunset, even if clear, foreshows rain. A ruddy sunset, especially if small horizontal lines of cloud lie as shoals of fish about the horizon, betokens windy weather.

If the sun sets behind a straight skirting of cloud, be sure of wind from the point where the sun is setting. If it sets behind a rugged, rocky, or mixed bank of clouds, very stormy, wet, or showery will the morrow be. If setting in a general sheet of haziness of a dusky or leaden hue, bad weather is near.

When setting in part clear, but among curly locks of thin cloud, like tufts of hair or the strippings off goose quills, expect fog or rain next morning. A very clear sunset of a pale gold colour is a sign of fine weather, if a calm and dewy evening with it. A clear orange-coloured sunset foretells a very fine day to follow, and more surely if with a rising barometer and a calm, dewy evening. A clear sky, and sun setting in a well-defined form, without dazzling the eye, and of a deep salmon colour, foreshows a brilliant and a very hot day to succeed. The same appearance, with a cream-coloured haze on horizon, is also a sign of fine hot weather; but in this case the sun becomes deep red just before he disappears. The same appearance at sunset in winter is attended by the sharpest frost of the season.

If, in unsettled weather, the wind veers from S.W. to W. or N.W. at sunset, expect finer for a day or two. In showery seasons, and when we have a day finer than before, if the wind returns again from W. or N.W. to S. or S.S.E. at sunset, be sure of a return of rain and storm.

At any season the barometer will rise while the wind works from S. to W. and N.W., and will fall while it recedes from westward to southward; hence we have a good rule whereby to judge of what is near both in summer and winter.

After fine, clear weather, the first signs in the sky of a coming change are usually light streaks, curls, wisps, or

mottled patches of white, distant cloud, which increase and are followed by an overcasting of murky vapour that grows into cloudiness. This appearance, more or less oily, or watery, as wind or rain will prevail, is an infallible sign. Usually, the higher and more distant such clouds seem to be, the more gradual the coming change of weather will prove.

Light, delicate, quiet tints or colours, with soft, undefined forms of clouds, indicate and accompany fine weather; but gaudy or unusual hues, with hard, definitely outlined clouds, foretell rain, and probably strong wind.

It should always be remembered that the state of the air foretells coming weather rather than shows the weather that is present; that the longer the time between the signs and the change foretold by them, the longer such altered weather will last; and, on the contrary, the less the time between a warning and a change, the shorter will be the continuance of such foretold weather. To know the state of the air, not only barometers and thermometers should be watched, but the appearances of the sky should be vigilantly noticed.

Misty clouds, forming or hanging on heights, show wind and rain coming—if they remain, increase, or descend. If they rise or disperse, the weather will improve or become fine.

Dew is an indication of fine weather; so is fog. Neither of these two formations occur under an overcast sky, or when there is much wind. One sees fog occasionally rolled away, as it were, by wind, but seldom while it is blowing.

The dryness or dampness of the air, and its temperature (for the season) should always be considered, with other indications of change, or continuance of wind and weather.

When cattle are noisy and restless, swallows flying very low under hedges, pigs appearing disturbed, toads creeping about at mid-day, and flies become more troublesome, expect rain or stormy weather.

“O Nature! all-sufficient over all,  
Thou never did betray!”



## TABLE XVIII.,

*Showing the Mean Average Temperature of each Month of the Year, during Ten Years, at the undermentioned places, compiled from the Tables of Professor Dove, and various other authorities.*

NAMES OF PLACES.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.	Sum. Temp.
<b>ENGLAND.</b>														
Ackworth .....	35·73	38·18	41·60	45·15	51·70	57·92	60·72	59·51	54·95	49·47	41·79	39·86	48·11	59·38
Aylesbury .....	33·8	41·7	42·3	48·2	58·9	58·5	61·9	59·0	56·8	49·0	40·8	40·1	49·02	59·46
Bedford .....	38·08	41·60	45·26	49·89	58·16	61·11	64·31	62·61	59·03	53·46	45·26	41·77	51·64	62·68
Bolton .....	36·8	39·7	42·9	47·0	53·9	59·3	61·6	60·6	55·7	49·9	42·5	39·9	49·15	60·50
Boston .....	35·97	35·09	45·32	47·16	54·75	62·04	62·45	62·60	57·31	48·64	42·92	41·10	49·61	62·36
Bristol .....	36·	40·	43·	51·	57·	61·	67·	65·	57·	49·	49·	45·	51·67	64·33
Carlisle .....	36·19	38·59	40·49	44·82	51·16	55·69	58·48	58·01	53·81	48·09	41·38	36·97	46·97	57·39
Cheltenham .....	38·25	41·75	46·18	50·50	54·16	61·50	66·33	65·12	59·06	50·32	43·50	41·75	51·54	64·32
Chiswick .....	37·17	38·02	41·87	47·39	54·77	60·59	62·27	61·81	56·16	49·27	43·56	38·42	49·44	61·55
Cobham .....	35·32	38·55	43·96	48·05	56·11	60·52	60·57	65·	57·51	47·17	43·17	38·75	49·55	62·03
Colchester .....	36·46	40·56	41·22	49·29	52·78	59·12	62·22	61·02	58·67	50·54	47·72	39·54	49·51	60·78
Derby .....	35·	40·5	40·	43·5	50·5	53·	55·5	54·5	51·	44·5	37·5	33·5	44·92	54·33
Durham .....	33·2	40·5	40·6	43·6	55·5	55·2	58·3	54·	53·2	47·6	40·9	40·1	46·9	55·08
Exeter .....	40·97	41·10	43·45	48·33	54·95	59·90	61·15	61·10	57·30	51·	46·40	42·3	50·67	60·72
Gosport .....	38·99	41·38	44·89	49·88	55·64	61·04	64·03	63·16	59·34	33·71	47·27	42·55	51·82	62·74
Greenwich .....	35·45	37·34	44·64	46·43	54·06	56·55	59·65	62·66	58·02	47·42	42·92	40·37	48·96	60·29
Hilston .....	42·64	44·39	46·37	49·49	51·93	60·90	61·93	61·98	59·19	53·53	48·59	47·78	52·14	61·60
High Wycombe .....	34·02	37·49	39·41	43·54	49·96	55·03	58·04	55·44	51·83	46·53	39·48	35·71	45·54	56·17
Isle of Man .....	40·52	41·03	43·41	46·77	52·13	57·02	60·33	59·60	55·89	51·17	46·80	43·43	49·84	58·98
Isle of Wight .....	37·	41·	44·	46·	56·	62·	65·	62·	58·	51·	44·	39·	50·42	63·
Kendal .....	33·97	37·70	40·52	44·92	52·06	56·87	58·99	57·51	53·40	48·34	40·83	39·45	47·05	57·79
Keswick .....	36·36	40·04	39·90	44·38	52·25	56·63	59·48	59·68	53·45	47·77	41·23	36·20	47·28	58·60
Knutsford .....	35·77	37·98	40·63	45·06	50·86	56·23	57·96	57·36	54·21	47·66	42·39	36·62	46·89	57·18
Lancaster .....	36·55	38·07	37·22	44·27	51·15	55·74	57·71	57·05	54·24	47·31	40·30	36·62	46·36	56·82
Liverpool .....	39·95	42·29	44·44	48·06	55·27	60·	61·41	62·	57·87	51·64	45·05	41·67	50·80	61·14
London (Roy. Soc.) .....	37·2	40·1	42·5	46·9	53·5	58·7	62·4	62·1	57·5	50·7	44·	40·4	49·7	61·
Lyndon .....	35·20	38·13	40·59	46·91	53·80	60·33	63·53	61·87	56·30	48·82	40·98	37·43	48·65	61·91
Malvern .....	38·	40·8	35·3	39·5	49·8	58·4	61·8	59·8	54·5	51·5	42·3	41·2	47·	60·
Manchester .....	36·7	39·3	41·8	47·1	53·2	58·2	60·8	60·4	56·3	50·0	42·9	39·0	48·81	59·80
New Malton .....	35·27	37·	40·71	46·39	52·44	57·64	61·10	58·60	55·25	47·61	42·45	36·63	47·59	59·11
Norwich .....	33·8	42·8	42·6	47·5	59·6	59·6	62·4	58·2	55·7	51·5	41·9	40·9	...	...
Oxford .....	36·9	37·1	47·1	46·7	52·7	58·7	61·6	60·8	57·10	49·4	43·6	37·	48·64	60·37
Penzance .....	42·62	44·90	45·32	48·07	54·55	59·52	62·10	61·11	57·11	53·36	47·54	45·16	51·78	60·91
Plymouth .....	44·61	44·83	45·60	48·53	54·92	58·88	62·01	61·80	57·78	52·72	48·15	45·14	52·07	60·89
Seathwaite .....	34·80	34·82	40·65	41·63	52·27	58·07	64·80	58·46	50·97	48·61	45·30	39·20	47·46	...
Sidmouth .....	36·3	42·	45·	51·	56·	61·	65·5	65·	61·5	53·	46·	43·	52·10	63·83
Southwick .....	42·06	43·50	46·09	50·65	56·01	61·23	63·01	60·78	56·93	50·18	45·41	42·78	51·55	61·67
Swansea .....	42·	39·5	43·7	50·6	56·6	62·3	62·8	62·7	60·1	52·	45·8	40·4	51·05	62·60
Torquay .....	39·3	46·0	45·5	49·7	62·1	58·6	61·6	59·5	57·8	52·6	46·3	46·8	52·1	59·9
Truro .....	42·85	42·68	44·65	48·61	54·09	58·79	60·11	61·07	57·74	51·15	47·05	43·85	51·05	60·
Whitehaven .....	38·47	39·53	41·15	46·22	53·72	58·45	60·60	59·87	55·79	49·86	43·66	41·70	49·09	59·64
York .....	33·39	39·01	42·91	48·20	57·01	61·18	62·42	63·51	57·26	47·81	40·81	36·43	49·16	62·37



TABLE XVIII.—(Continued.)

*Showing the Mean Average Temperature of each Month in the Year, during Ten Years, at the undermentioned places, compiled from the Tables of Professor Dove, and various other authorities.*

NAMES OF PLACES.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Year.	Sum. Temp.
<b>IRELAND.</b>														
Antrim.....	32°	38·75	41·25	49·75	49·25	53·75	60·75	60°	54·25	51·50	43·75	39·50	47·87	58·16
Belfast .....	39·02	40·02	43·1	44·4	54·6	59·05	60·7	59·85	54·16	49·51	42·72	41·82	49°	59·83
Cork .....	43·91	44·47	48·02	53·9	60·3	65·13	65·47	64·87	61·3	53·33	47·93	44·36	54·41	65·15
Dublin .....	39·96	41·33	43·64	47·17	52·01	57·18	60·53	60·22	55·75	49·55	42·61	42·61	49·09	59·31
Edgeworthstown .....	39°	38°	42°	50°	50°	60°	58°	61°	50°	46°	39°	38°	48°	59·66
<b>SCOTLAND.</b>														
Aberdeen.....	37·82	39·03	42·80	47·57	54·29	58·49	60·47	59·64	56·72	49·97	43·18	40·18	49·18	59·33
Alford .....	33·30	35·46	37·86	42·56	50·15	55·45	57·46	56·54	51·57	44·11	38·55	37·94	45·08	56·46
Applegarth-manse ...	36·75	37·3	41·05	46·1	52°	56·2	57·5	57·1	54·25	47·45	42·5	39·6	47·32	56·9
Bonally .....	34·68	35·92	36·70	40·75	47·48	53·50	55·96	54·48	49·86	45·62	38·23	37·38	44·21	54·65
Carbeth .....	35·74	38·02	40·22	42·19	50·05	56·39	60·65	59·02	54·50	46·58	42·37	36·18	46·82	58·65
Clunie manse.....	36·46	38·29	41·20	45·65	51·91	57·07	59·59	57·63	53·21	47·67	40·72	38·15	47·30	58·10
Colington.....	35·78	38·23	40·31	45·35	52·12	57·29	59·17	58·22	52·98	48·75	40·13	39·87	47·83	58·23
Dunfermline .....	35·71	37·89	39°	41·85	48·23	53·75	56·85	54·97	50·96	46·41	40·66	36·41	45·22	55·19
Edinburgh .....	37·38	38·22	40·53	44·18	50·34	56·03	58·69	56·79	53·44	48·79	41·43	39·75	47·13	57·17
Elgin.....	37·56	39·67	40·53	43·54	51·82	59·53	61·23	60·45	53·35	46·98	40·44	38·11	47·77	60·40
Glasgow .....	38·23	39·48	...	45·96	54·96	59·33	61·25	59·78	...	49·97	42·38	41·33	49·27	60·12
Hawk's Hill.....	36·5	38·75	42·8	48·2	52·03	57·88	61·48	61·03	55·18	48·88	40·10	38·08	48·41	60·13
Kinfaun's Castle.....	35·99	38·17	40·70	44·85	50·3	55·81	58·45	57·39	53·43	47·13	41·79	38·66	46·89	57·22
Leadhills .....	32°	34·8	37·5	42·95	49·65	55·05	57·2	54·95	50·45	44·05	37·5	33·3	44·12	55·73
Leith.....	41·09	40·62	40·87	46·38	50·01	56·09	60·36	58·37	56·31	49·23	41·19	39·78	48·36	58·27
Makerstoun.....	32·3	38·6	41·3	44·6	51·6	56·8	55·85	57·55	54·3	44·25	38·05	44·8	46·67	56·73
St. Andrew's .....	37·25	40°	42·17	46·03	51·58	57·19	60·35	59·30	55·69	49·56	43·17	40·41	48·56	58·95
Sandwick-manse(Ork.)...	39·57	38·42	40·7	43·77	48·37	52·79	54·61	55·41	52·24	46·93	43·24	40·92	46·41	54·27
Stromness (Orkney) ...	38·05	38·94	40·78	42·29	48·33	53·03	55·37	54·86	52·36	48·61	42·44	41·08	46·34	54·42
Thornshaven (Faro Is.)	37·56	36·9	37·52	41·81	45·37	53·44	55·87	54·55	51·50	45·95	41·69	42·63	45·40	54·62
Unst (Shetland).....	40·3	36·75	40·4	42·6	46·2	50·8	52·75	54·5	50·7	43·35	39°	37°	44·70	52·68
Wick.....	33·57	37·93	41·94	44·04	49·30	53·11	56·47	56·42	54·42	48·32	42·84	39·96	46·94	55·33

TABLE XIX.

*Showing the Average Quantity of Rain, during Ten Years,  
for each Month at the undermentioned places, compiled  
from various authorities :—*

NAMES OF PLACES.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Abbot's Hill (Herts) ...	1·85	1·97	1·62	1·45	1·85	2·21	2·29	2·42	2·64	2·82	3·84	1·64	26·61
Applegarth (Manse) ...	2·63	2·30	2·37	1·69	1·81	3·27	4·10	3·51	2·57	3·92	2·97	2·44	33·58
Boston .....	1·59	1·45	1·52	1·50	2·17	2·41	2·77	2·83	2·24	2·72	2·26	1·44	24·90
Chiswick .....	1·95	1·66	1·43	1·40	1·85	1·79	2·05	2·75	2·37	2·92	2·70	1·53	24·40
Cobham .....	2·24	2·33	1·72	1·21	3·19	1·44	2·27	2·93	3·57	2·88	4·41	1·96	25·25
Cork .....	4·47	3·33	3·23	2·46	2·25	2·12	2·65	3·16	2·51	3·88	5·0	5·21	40·27
Dublin .....	2·15	1·86	1·57	2·22	1·58	1·14	2·08	2·43	1·97	2·58	2·67	2·41	24·66
Exeter .....	3·32	2·35	2·34	1·97	2·14	2·26	1·91	2·59	2·60	3·69	4·67	2·74	32·58
Edgeworthstown .....	5·80	1·91	1·27	2·80	0·99	2·40	6·37	2·27	2·67	3·63	3·62	1·83	35·56
Good-a-Moor (Under } Dartmoor)..... }	6·05	4·14	3·82	2·27	4·66	3·28	3·25	5·42	5·06	5·32	9·96	4·27	57·50
Gosport .....	1·123	1·963	2·753	1·600	2·464	1·376	0·966	2·232	3·606	3·362	3·400	4·628	29·473
Isle of Man .....	2·08	2·68	2·44	3·24	1·96	1·96	2·75	3·49	3·43	3·77	4·02	4·59	36·25
Kendal .....	5·299	5·126	3·151	2·986	3·480	2·722	4·959	5·089	4·874	5·439	4·785	5·084	53·944
Keswick.....	4·87	2·63	4·60	4·24	3·02	4·12	4·94	5·85	4·41	9·0	8·35	6·66	62·72
Lancaster .....	3·461	2·995	1·753	2·180	2·460	2·512	4·140	4·581	3·751	4·151	3·755	3·955	39·714
London .....	1·464	1·250	1·172	1·279	1·636	1·738	2·448	1·807	1·842	1·092	2·222	1·736	20·686
Londonderry.....	3·81	0·63	0·63	4·02	1·89	1·81	0·83	0·95	3·01	4·96	3·94	2·60	29·08
Manchester .....	2·310	2·568	2·098	2·010	2·895	2·502	3·697	3·665	3·281	3·922	3·360	3·832	36·146
Penzance .....	3·83	3·26	3·88	1·82	3·06	2·14	2·96	3·50	3·44	5·61	5·19	6·01	44·70
Sandwick (Orkney).....	3·65	3·09	3·01	1·90	1·70	2·15	2·25	3·09	2·59	5·23	4·14	4·03	36·83
Scathwaite .....	13·39	7·75	11·20	8·36	5·68	7·31	10·92	12·22	9·31	20·37	17·72	17·39	141·64
Swansea.....	3·66	2·56	2·66	2·27	2·01	2·33	2·78	4·28	2·16	4·93	4·	3·04	36·68
Tavistock .....	3·7	4·5	3·5	1·9	3·4	3·5	4·6	4·2	5·3	5·	8·9	5·1	53·6
Truro.....	4·66	3·79	3·44	2·54	2·41	2·79	2·64	3·04	3·68	4·08	6·11	4·90	44·08
Whitehaven .....	3·67	2·22	3·18	2·65	2·40	3·10	4·44	5·18	3·41	6·71	5·54	4·72	47·08

## COMPOSITION OF GOOD LINSEED CAKES.—(SIBSON.)

	1	2	3	4	5
Moisture ... ..	12.52	12.62	13.20	11.82	11.20
Oil ... ..	13.54	11.52	12.02	10.70	11.82
Albumen and other nitrogenous compounds* ... ..	29.01	28.44	27.04	28.40	27.90
Mucilage and other carbonaceous principles ... ..	30.16	28.46	29.44	29.51	30.36
Phosphate of lime, magnesia, potash, and other mineral constituents of food ... ..	4.58	5.19	5.22	4.90	4.80
Woody fibre ... ..	9.85	11.80	12.02	13.45	12.40
Insoluble earthy matters ... ..	0.32	1.97	1.06	1.30	1.52
	100.00	100.00	100.00	100.00	100.00
	1	2	3	4	5
* Containing nitrogen ... ..	4.63	4.55	4.31	4.54	4.46

## AVERAGE COMPOSITION OF LINSEED CAKE.

	Per cent.	Per ton.
Moisture ... ..	12.70	284.5 lb.
Oil ... ..	11.32	253.5
Albuminous compounds* ... ..	28.21	631.9
Mucilage and other carbonaceous principles ... ..	29.42	659.0
Phosphate of lime, magnesia, and other constituents of food† ... ..	4.84	108.4
Woody fibre ... ..	12.46	279.2
Insoluble earthy matters ... ..	1.05	23.5
	100.00	2240.0
	Per cent.	Per ton.
* Containing nitrogen ... ..	4.50	100.8
† Containing phosphoric acid and potash ... ..	1.28	28.7
	1.34	30.1

## COMPOSITION OF BAD LINSEED CAKES.

	1	2	3	4
Moisture ... ..	14.42	13.02	12.40	11.31
Oil ... ..	8.02	8.64	10.24	9.05
Albuminous compounds ... ..	18.87	22.56	26.71	26.54
Mucilage and other carbonaceous principles ... ..	36.49	29.56	24.24	22.20
Phosphate of lime, magnesia, potash, and other mineral constituents of food ... ..	4.84	4.30	5.21	4.28
Woody fibre ... ..	15.20	17.02	15.76	23.61
Insoluble earthy matters ... ..	2.52	4.90	5.44	3.01
	100.00	100.00	100.00	100.00

## COMPOSITION OF RAPE-CAKE. (SIBSON.)

	Per cent.	Per ton.
Moisture .....	11·28	252·7 lb.
Oil .....	11·20	250·9
Albuminous Compounds * .....	30·54	684·1
Non-Nitrogenous Matters .....	28·45	637·3
Phosphate of Lime, Manganese, Potash, and other } Mineral constituents of Food .....	5·60	25·4
Woody Fibre .....	11·51	257·8
Insoluble Earthy Matters † .....	1·42	31·8
	100·00	2240·0
	Per cent.	Per ton.
* Containing Nitrogen .....	5·66	137·8
† Containing Phosphoric Acid .....	1·17	26·2
and Potash .....	1·54	34·5

## COMPOSITION OF WHEAT, BARLEY, AND OATS.

	WHEAT.		BARLEY.		OATS.	
	Per cent	Per ton.	Per cent	Per ton.	Per cent	Per ton.
Moisture .....	15·26	341·4 lb.	14·65	328·2 lb.	15·09	338·0 lb.
Albuminous Compounds * .....	11·54	258·5	10·84	242·8	11·85	265·4
Starch, Sugar and other } carbonaceous matters }	68·47	1533·7	68·31	1530·1	63·34	1418·8
Woody fibre .....	2·61	67·2	3·45	77·3	7·02	157·3
Mineral matters † .....	1·75	39·2	2·75	61·6	2·70	60·5
	100·00	2240·0	100·00	2240·0	100·00	2240·0
* Containing Nitrogen ....	1·86	41·6	1·73	38·7	1·89	42·6
† Containing Phosphoric } Acid .....	0·80	17·9	0·97	22·4	0·67	15·0
and Potash .....	0·52	11·6	0·42	9·4	0·40	8·9
	One ton equal to 37½ bushels at 60 lb.		One ton equal to 41½ bushels at 54 lb.		One ton equal to 56 bushels at 40 lb.	

## COMPOSITION OF PEA AND BEAN STRAW.

	PEA-STRAW.		BEAN-STRAW.	
	Per cent	Per ton.	Per cent	Per ton.
Water .....	16·02	358·8 lb.	19·40	434·5 lb.
Fatty Matters .....	2·34	52·4	1·02	22·8
Albuminous Compounds * .....	8·86	198·5	3·36	75·3
Gum and other Carbonaceous principles ..	25·06	561·3	6·93	155·2
Woody Fibre .....	42·79	958·5	65·58	1469·0
Mineral Matters † .....	4·93	110·5	3·71	83·2
	100·00	2240·0	100·00	2240·0
	Per cent	Per ton.	Per cent	Per ton.
* Containing Nitrogen .....	1·41	31·6	·54	12·1
† Containing Phosphoric Acid .....	0·41	09·2	·27	6·0
and Potash .....	0·59	13·4	·78	17·5

COMPOSITION OF BEAN MEAL.—(SIBSON.)

	Per cent.	Per ton.
Moisture ... ..	14·8	331·5 lb.
Legumine and other nitrogenous compounds *	23·3	521·9
Starch, &c. ... ..	48·5	1086·4
Woody fibre ... ..	10·0	224·0
Mineral matters † ... ..	3·4	76·2
	100·00	2240·0
	Per cent.	Per ton.
* Containing nitrogen ... ..	3·73	83·5
† Containing phosphoric acid ... ..	1·08	24·2
and potash ... ..	1·42	31·8

COMPOSITION OF MEADOW GRASS.

	Per cent.	Per ton.
Water ... ..	76·52	1714 lb.
Fatty matters, chlorophyl, &c. ... ..	1·40	31
Albuminous compounds * ... ..	2·25	50½
Sugar, gum, cellular tissue, &c. ... ..	12·68	284½
Woody fibre ... ..	4·97	111
Mineral matters † ... ..	2·18	49
	100·00	2240
	Per cent.	Per ton.
* Containing nitrogen ... ..	·36	8
† Containing phosphoric acid ... ..	·12	2½
and potash ... ..	·56	12½

COMPOSITION OF GREEN RYE AND ITALIAN RYE GRASS.

	Green Rye.	Italian Rye Grass.
Water ... ..	75·42	75·61
Fatty matters ... ..	0·89	0·80
Albuminous compounds ... ..	2·70	2·45
Cellular tissue, &c. ... ..	9·13	14·14
Woody fibre ... ..	10·48	4·82
Mineral matters ... ..	1·35	2·21
	100·00	100·00

COMPOSITION OF VETCHES, LUPINES, SAINFOIN, AND LUCERNE.

	Vetches.	Lupines.	Sainfoin.	Lucerne.
Water ... ..	81·30	89·20	77·32	73·41
Albuminous compounds ... ..	3·60	2·38	3·52	4·40
Carbonaceous principles ... ..	8·80	4·33	17·43	19·11
Woody fibre ... ..	4·46	3·29		
Mineral matters ... ..	1·84	0·80	1·73	3·08
	100·00	100·00	100·00	100·00



COMPOSITION OF WHITE TURNIPS (SIBSON).

	Per cent.	Per ton.
Water .. .. .	90·43	2025·6 lb.
Albuminous compounds *	1·04	23·3
Pectin, sugar, and other carbonaceous principles ..	5·45	122·1
Woody fibre .. .. .	2·44	54·9
Mineral matter † .. .. .	·63	14·1
	100·00	2240·0
	Per cent.	Per ton.
* Containing nitrogen .. .. .	·16	3·6
† Containing phosphoric acid .. .. .	·06	1·34
and potash .. .. .	·23	5·2

COMPOSITION OF SWEDES.

	Per cent.	Per ton.
Water .. .. .	89·46	2003·9 lb.
Albuminous compounds *	1·34	30·9
Pectin, sugar, and other carbonaceous principles ..	5·93	132·8
Woody fibre .. .. .	2·64	59·4
Mineral matter † .. .. .	·62	13·9
	100·00	2240·0
	Per cent.	Per ton.
* Containing nitrogen .. .. .	·21	4·7
† Containing phosphoric acid .. .. .	·06	1·34
and potash .. .. .	·22	4·9

COMPOSITION OF POTATOES.

	Per cent.	Per ton.
Water .. .. .	75·0	1680·0 lb.
Albuminous compounds *	2·3	51·5
Starch, &c. .. .. .	18·7	418·9
Woody fibre .. .. .	3·0	67·2
Mineral matter † .. .. .	1·0	22·4
	100·0	2240·0
	Per cent.	Per ton.
* Containing nitrogen .. .. .	·37	8·28
† Containing phosphoric acid .. .. .	·14	3·13
and potash .. .. .	·48	10·75

COMPOSITION OF PARSNIPS AND CARROTS.

	Parsnips.	Carrots.
Water .. .. .	82·05	87·33
Albuminous compounds .. .. .	1·28	·66
Sugar, pectin, starch, and cellular fibre .. .. .	15·74	11·27
Mineral matter .. .. .	·93	·74
	100·00	100·00

## COMPOSITION OF ASH OF GRASS. (SIBSON.)

	Per cent.
Potash ... ..	25.40
Lime ... ..	15.21
Magnesia ... ..	5.30
Soda ... ..	6.24
Oxide of iron ... ..	0.18
Phosphoric acid ... ..	5.45
Sulphuric acid ... ..	7.08
Silicic acid ... ..	24.30
Chlorine ... ..	4.76
Carbonic acid and loss ... ..	6.08
	100.00

## COMPOSITION OF RICH AND POOR MILK.

	1	2
Water ... ..	85.20	89.00
Butter and fatty matters ... ..	4.96	2.47
Casein or cheesy matters ... ..	3.68	2.69
Sugar of milk ... ..	5.03	5.08
Mineral matters ... ..	1.13	.76
	100.00	100.00

*Table showing the estimated value of the manure obtained from the consumption of one ton of different articles of food, each supposed to be of good quality of its kind.*

Description of Food.	Estimated money value of the manure from one ton of each food.
	£ s. d.
1. Decorticated cotton-seed cake ... ..	6 10 0
2. Rape cake ... ..	4 18 0
3. Linseed cake ... ..	4 12 0
4. Malt-dust ... ..	4 5 0
5. Lentils ... ..	3 17 0
6. Linseed ... ..	3 13 0
7. Tares ... ..	3 13 6
8. Beans ... ..	3 13 6
9. Peas ... ..	3 2 6
10. Locust beans ... ..	1 2 6 (?)
11. Oats ... ..	1 14 6
12. Wheat ... ..	1 13 0
13. Indian corn ... ..	1 11 6
14. Malt ... ..	1 11 6
15. Barley ... ..	1 9 6
16. Clover hay ... ..	2 5 0
17. Meadow hay ... ..	1 10 0
18. Oat straw ... ..	0 13 6
19. Wheat straw ... ..	0 12 6
20. Barley straw ... ..	0 10 6
21. Potatoes ... ..	0 7 0
22. Mangolds ... ..	0 5 0
23. Swedish turnips ... ..	0 4 3
24. Common turnips ... ..	0 4 0
25. Carrots ... ..	0 4 0

## FEEDING.

	Real food in 100 parts natural produce.	Quantities containing about an equal amount of real food.	Albuminous compounds in 100 parts natural produce.	Carbonaceous principles in 100 parts natural produce.	Proportion of albuminous to carbonaceous principles.
Wheat, grain ..	82.1	1.0	11.54	68.74	1 to 6.0
Barley, grain ..	81.9	1.0	10.84	68.31	1 „ 6.3
Carob beans .. ..	81.9	1.0	7.72	72.44	1 „ 9.4
Cotton-seed cake } (decorticated) }	81.9	1.0	41.25	54.90	1 „ 1.3
Linseed .. ..	81.3	1.0	24.44	*112.30	1 „ 4.5
Indian corn .. ..	80.0	1.0	11.27	67.50	1 „ 6.0
Oats, grain .. ..	79.9	1.0	11.84	63.30	1 „ 5.3
Rape cake .. ..	77.8	1.0	30.54	55.30	1 „ 1.8
Bran .. ..	75.6	1.1	13.88	55.50	1 „ 5.3
Bean meal .. ..	75.2	1.1	23.30	48.50	1 „ 2.1
Linseed cake .. ..	73.9	1.1	28.21	55.75	1 „ 1.9
Hay, meadow .. ..	65.7	1.2	8.08	49.87	1 „ 6.0
„ clover .. ..	56.3	1.4	14.34	34.50	1 „ 2.4
Pea straw .. ..	41.2	2.0	8.86	27.40	1 „ 3.1
Oat straw .. ..	23.8	3.4	2.75	15.65	1 „ 5.7
Wheat straw .. ..	22.5	3.6	2.93	15.40	1 „ 5.2
Potatoes .. ..	22.0	3.7	2.30	18.70	1 „ 8.1
Italian rye-grass ..	19.6	4.2	2.45	14.94	1 „ 6.1
Meadow grass .. ..	18.5	4.4	2.25	14.08	1 „ 6.2
Barley straw .. ..	18.2	4.5	4.43	9.57	1 „ 2.2
Bean straw .. ..	15.1	5.4	3.36	7.95	1 „ 2.4
Green rye .. ..	14.1	5.8	2.70	10.02	1 „ 3.5
Kohl-rabbi .. ..	12.7	6.4	2.35	8.23	1 „ 3.5
Clover, green .. ..	12.5	6.5	3.19	7.69	1 „ 2.4
Mangolds .. ..	11.0	7.4	1.54	8.54	1 „ 5.5
Parsnips .. ..	9.9	8.2	1.28	7.71	1 „ 6.0
Carrots .. ..	9.2	8.9	0.66	7.80	1 „ 11.8
Cabbage .. ..	9.4	8.6	1.50	7.09	1 „ 4.7
Green rape .. ..	9.4	8.7	3.13	4.64	1 „ 1.5
Swedes .. ..	7.9	10.4	1.34	5.93	1 „ 4.4
White turnips .. ..	7.1	11.5	1.04	5.45	1 „ 5.2

In this item, and also in the oilcakes following, a necessary correction has been made for the superior value of oil compared with the other carbonaceous principles. Oils and fat being much richer in carbon than starch, sugar, and other carbonaceous principles, a smaller amount is supposed to go further as a fat-forming and heat-giving constituent of food. On this account it is usual to consider ten parts of fat as equal to twenty-four of starch. In the other articles of food, where the fat occurs only in much smaller quantities, this correction has been omitted.

## MEMORANDA

*As Facts to assist the Memory in matters of Calculations  
and Valuations.*

FROM repeated applications made to Mr. Inwood, on different occasions, as to the ready and usual practical method of applying the Tables in the general Valuation of Property, he was induced to offer a few suggestions, and from his excellent book we extract a few Tables.

In respect to the value of Freehold Land, it is generally considered 30 to 33 Years Purchase	...	...	...	...	...	3 per cent.
Freehold Ground-rent, 25 to 30 Years Purchase	...	...	...	...	...	4 per cent.
Freehold Houses and Buildings, 1st and 2nd Class, 18 to 20 Years Purchase	...	...	...	...	...	5 per cent.
Ditto, 3rd and 4th ditto, 16 Years Purchase	...	...	...	...	...	6 per cent.
For Leasehold Property refer to Table I. for the term of Years unexpired for long Terms, 1st and 2nd Class Houses and Buildings, 15 to 16 Years Purchase	...	...	...	...	...	6 per cent.
For ditto, 2nd and 3rd ditto, 14 to 15 Years Purchase	...	...	...	...	...	7 per cent.
For ditto, 3rd and 4th ditto, 12 to 13 Years Purchase	...	...	...	...	...	8 per cent.
For ditto, 4th and 5th ditto, 11 to 12 Years Purchase	...	...	...	...	...	9 per cent.
For ditto, 5th and 6th ditto, 10 Years Purchase	...	...	...	...	...	10 per cent.

*Renewing Leases held under Deans and Chapters.*

The Dean and Chapter of Westminster renew their leases, originally granted for forty years, under the 8 per cent. tables; the renewing fine of one year's rent payable by the tenant every fourteen years; except for very superior houses at the west end of the town, which are renewed under the 7 per cent. Tables. The renewing fine of  $1\frac{1}{2}$  years being payable by the tenant every fourteen years.

*The Bishop of Winchester's Estates.*

$1\frac{1}{2}$  years renewing fine for 14 years lapsed in a lease originally granted for 40 years, 7 per cent. Tables if next the river, or  $1\frac{1}{4}$  years fine in land 8 per cent.

*City of London Leases, Scale of Ground Rents.*

		s.	d.		d.
1st class situation. }	Per foot frontage ...	5	0	Per foot deep	3
2nd do.	ditto ...	4	0	ditto ...	2
3rd do.	ditto ...	3	0	ditto ...	$1\frac{1}{2}$
4th do.	ditto ...	2	0	ditto ...	1
5th do.	ditto ...	1	0	ditto ...	$0\frac{1}{2}$

Renewing fine, 7 years ground-rent every 14 years, for a term of 41 or 61 years.

Lessee to insure, repair, &c.

*Purchase of Good Will in Retail Trade, &c.*

If retail trade is carried on, giving credit, say, 1 year's purchase.

Ditto, as a ready-money concern, say,  $1\frac{1}{2}$  year's purchase.

Ditto, trade subject to be annihilated, as public houses, say, 2 to 3 years purchase.

Calculating rent for fixtures, say  $12\frac{1}{2}$  per cent., or  $\frac{1}{8}$ , being 2s. 6d. in the pound.



*Allowance to Tenants for Repairs.*

8 per cent. allow for amount of repairs for 21 years.

7 ditto ... .. ditto 31 years.

Or, generally, say, allow—

12 per cent. ... .. ditto 12 years.

10 ditto ... .. ditto 15 years.

9 ditto ... .. ditto 18 years.

8 ditto ... .. ditto 23 years.

7 ditto .. ... ditto 33 years.

6 ditto ... .. above ditto.

*Purchase of Land Tax.*

To be made under the Land-Tax Act at the price of the 3 per cent. consols, and to which add one-tenth to the amount, the income-tax being now taken off.

*Memorandum relative to the Valuation of Land.*

43,560 feet, superficial, an acre, at—

d.				£	s.	d.
$\frac{1}{4}$	per foot	...	...	45	7	6 per acre.
$\frac{1}{2}$	ditto	...	...	90	15	0 ditto.
$\frac{3}{4}$	ditto	...	...	136	2	0 ditto.
1	ditto	...	...	181	10	0 ditto.
$1\frac{1}{4}$	ditto	...	...	226	17	6 ditto.
$1\frac{1}{2}$	ditto	...	...	272	5	0 ditto.

*Crown Lands.*

The mode adopted in respect to the valuation for renewal of the crown leases—allowance for repairs as under—

Houses £25 per annum, and under ... 10 per cent.

£25 to £50 ... .. 6 ditto.

£50 to £100 ... .. 7 ditto.

£100 and upwards ... .. 5 ditto.

The rack rent not an overstrained rent on account of crown property, and to encourage improvements, viz., *Calculation.*

Rack rent ... .. £63 per annum.

Deductions.	£	s.	d.
Present repair, £200 ...	14	0	0
Ordinary repairs ...	3	3	0
Land-tax ...	3	3	0
Insurance, £700 ...	1	4	0
Outgoings ...	4	8	0
	<hr/>		
		25	18 0
		<hr/>	
		£37	2 0

Say, £40 per annum clear rent.

Or, in another case,

Rack rent ... .. £150 per annum.

Deductions.	£	s.	d.
Present repairs, £250...	17	10	0
Ordinary repairs ...	7	10	0
Land-tax ...	5	12	0
Insurance, £1,500 ...	3	7	6
Contingencies ...	7	10	0
	<hr/>		
	41	9	6
	<hr/>		
		42	
		<hr/>	
		£108	

Crown leases, their custom under Act of Parliament is to renew leases when within 20 years of being expired, not earlier, a new rent is then assessed, taking  $\frac{1}{3}$  fine, and  $\frac{2}{3}$  rent, in order to secure more effectually the rent so reserved.

### *Increase of Population.*

First 10 years of the century.—1800 to 1810	} 15½ per cent.
Increase in England and Wales ... ..	
1810 to 1820	
1820 to 1830	15½ per cent.
Increase in population in England & Wales, }	9 millions.
1801	
1810	
1821	
	10 millions.
	12 millions.

Population of London	...	...	...	$1\frac{1}{2}$ millions.
Ditto, including environs	...	...	...	$1\frac{3}{4}$ millions.

Out of 1,000 persons there die annually about 30; and that the number of inhabitants of every city and county is renewed every 30 years, or nearly so.

Calculations have been made tending to show that the proportion of mortality is diminishing, which fact is confirmed by the returns in several great cities, proving incontestably the material amelioration which has taken place in great cities.

### Mortality.

100 years since,	1	died in	30.
50	„	1	„ 40.
30	„	1	„ 48.
20	„	1	„ 52.
Present time	1	„	60.

### *For Surveys and Valuations*

Made in respect to the extensive improvements which have taken place in London, Regent Street, Strand, the Commissioners of Improvements of Westminster, the City and New London Bridge, St. Katherine's Docks, and other improvements, the charges have been at the rate of  $\frac{1}{2}$  per cent., and three guineas for each surveyor attending to give evidence before a judge and jury. It is usual to charge 1 per cent. for the first thousand pounds, and the remainder  $\frac{1}{2}$  per cent.

Her Majesty's Commissioners for building churches, for travelling expenses, allow 1s. 6d. per mile out, and the same back, but no expenses, and four journeys, not more, allowed to each church.

For executing Valuation of Estates and Farms in detail, some Surveyors charge from three to four guineas a day, exclusive of travelling expenses. The more common custom, however, is to charge a per centage on the value in Fee, inclusive of expenses; or five guineas per day for the time occupied, inclusive of expenses.

TABLE I.

For the *Purchasing* of Leases, Estates, or Annuities for Terms of Years certain, at the several Rates of 3, 4, 5, 6, 7, 8, 9, and 10 per Cent. Interest, which the Purchaser may thereby make of his Money.

Yrs.	Years Purchase 3 per Cent.		Years Purchase 4 per Cent.		Years Purchase 5 per Cent.		Years Purchase 6 per Cent.		Yrs.
$\frac{1}{2}$	·489	$\frac{1}{2}$	·485	$\frac{1}{2}$	·482	$\frac{1}{2}$	·479	$\frac{1}{2}$	$\frac{1}{2}$
1	·971	1	·962	1	·952	1	·943	1	1
$1\frac{1}{2}$	1·446	$1\frac{1}{2}$	1·428	$1\frac{1}{2}$	1·411	$1\frac{1}{2}$	1·395	$1\frac{1}{2}$	$1\frac{1}{2}$
2	1·913	2	1·886	2	1·859	$1\frac{3}{4}$	1·833	$1\frac{3}{4}$	2
$2\frac{1}{2}$	2·374	$2\frac{1}{4}$	2·335	$2\frac{1}{4}$	2·297	$2\frac{1}{4}$	2·259	$2\frac{1}{4}$	$2\frac{1}{2}$
3	2·829	$2\frac{3}{4}$	2·775	$2\frac{3}{4}$	2·723	$2\frac{3}{4}$	2·673	$2\frac{3}{4}$	3
$3\frac{1}{2}$	3·276	$3\frac{1}{4}$	3·207	$3\frac{1}{4}$	3·140	$3\frac{1}{4}$	3·075	3	$3\frac{1}{2}$
4	3·717	$3\frac{3}{4}$	3·630	$3\frac{3}{4}$	3·546	$3\frac{1}{2}$	3·465	$3\frac{1}{2}$	4
$4\frac{1}{2}$	4·152	$4\frac{1}{4}$	4·045	4	3·942	4	3·844	$3\frac{3}{4}$	$4\frac{1}{2}$
5	4·580	$4\frac{1}{2}$	4·452	$4\frac{1}{2}$	4·329	$4\frac{1}{4}$	4·212	$4\frac{1}{4}$	5
$5\frac{1}{2}$	5·002	5	4·851	$4\frac{3}{4}$	4·707	$4\frac{3}{4}$	4·570	$4\frac{1}{2}$	$5\frac{1}{2}$
6	5·417	$5\frac{1}{2}$	5·242	$5\frac{1}{4}$	5·076	5	4·917	5	6
$6\frac{1}{2}$	5·827	$5\frac{3}{4}$	5·626	$5\frac{3}{4}$	5·435	$5\frac{1}{2}$	5·255	$5\frac{1}{4}$	$6\frac{1}{2}$
7	6·230	$6\frac{1}{4}$	6·002	6	5·786	$5\frac{3}{4}$	5·582	$5\frac{1}{2}$	7
$7\frac{1}{2}$	6·628	$6\frac{3}{4}$	6·371	$6\frac{1}{4}$	6·129	$6\frac{1}{4}$	5·901	6	$7\frac{1}{2}$
8	7·020	7	6·733	$6\frac{3}{4}$	6·463	$6\frac{1}{2}$	6·210	$6\frac{1}{4}$	8
$8\frac{1}{2}$	7·406	$7\frac{1}{2}$	7·087	7	6·789	$6\frac{3}{4}$	6·510	$6\frac{1}{2}$	$8\frac{1}{2}$
9	7·786	$7\frac{3}{4}$	7·435	$7\frac{1}{2}$	7·108	7	6·802	$6\frac{3}{4}$	9
$9\frac{1}{2}$	8·161	$8\frac{1}{4}$	7·776	$7\frac{3}{4}$	7·419	$7\frac{1}{2}$	7·085	7	$9\frac{1}{2}$
10	8·530	$8\frac{1}{2}$	8·111	8	7·722	$7\frac{3}{4}$	7·360	$7\frac{1}{4}$	10
$10\frac{1}{2}$	8·894	9	8·439	$8\frac{1}{2}$	8·018	8	7·627	$7\frac{3}{4}$	$10\frac{1}{2}$
11	9·253	$9\frac{1}{4}$	8·760	$8\frac{3}{4}$	8·306	$8\frac{1}{4}$	7·887	8	11
$11\frac{1}{2}$	9·606	$9\frac{1}{2}$	9·076	9	8·588	$8\frac{1}{2}$	8·139	$8\frac{1}{4}$	$11\frac{1}{2}$
12	9·954	10	9·385	$9\frac{1}{2}$	8·863	$8\frac{3}{4}$	8·384	$8\frac{1}{2}$	12
$12\frac{1}{2}$	10·297	$10\frac{1}{4}$	9·688	$9\frac{3}{4}$	9·132	$9\frac{1}{4}$	8·622	$8\frac{1}{2}$	$12\frac{1}{2}$
13	10·635	$10\frac{3}{4}$	9·986	10	9·394	$9\frac{1}{2}$	8·853	$8\frac{3}{4}$	13
$13\frac{1}{2}$	10·968	11	10·277	$10\frac{1}{4}$	9·649	$9\frac{3}{4}$	9·077	9	$13\frac{1}{2}$
*14	11·296	$11\frac{1}{4}$	10·563	$10\frac{1}{2}$	9·899	10	9·295	$9\frac{1}{4}$	14
$14\frac{1}{2}$	11·619	$11\frac{1}{2}$	10·843	$10\frac{3}{4}$	10·142	$10\frac{1}{4}$	9·507	$9\frac{1}{2}$	$14\frac{1}{2}$
15	11·938	12	11·118	11	10·380	$10\frac{1}{2}$	9·712	$9\frac{3}{4}$	15

\* **EXAMPLE.**—A lease or annuity for 14 years to make 3 per cent. and to get back the principal, is worth 11·296, or  $11\frac{1}{4}$  years purchase of the clear annual rent. At 4 per cent. 10·563, or  $10\frac{1}{2}$  years purchase. At 5 per cent. 9·899, or 10 years purchase. At 6 per cent. 9·295, or  $9\frac{1}{4}$  years purchase.

In calculating the value of annuities, leases, &c., Compound Interest is always reckoned and allowed.

TABLE I.—(Continued.)

For the *Purchasing* of Leases, Estates, or Annuities, for terms of years certain, at the several rates of 3, 4, 5, 6, 7, 8, 9, and 10 per cent. interest, which the purchaser may thereby make of his money.

Yrs.	Years Purchase. 7 per Cent.		Years Purchase. 8 per Cent.		Years Purchase. 9 per Cent.		Years Purchase. 10 per Cent.		Yrs.
$\frac{1}{2}$	·475	$\frac{1}{2}$	·472	$\frac{1}{2}$	·469	$\frac{1}{2}$	·465	$\frac{1}{2}$	$\frac{1}{2}$
1	·935	1	·926	1	·917	1	·909	1	1
$1\frac{1}{2}$	1·379	$1\frac{1}{2}$	1·363	$1\frac{1}{4}$	1·347	$1\frac{1}{4}$	1·332	$1\frac{3}{4}$	$1\frac{1}{2}$
2	1·808	$1\frac{3}{4}$	1·783	$1\frac{3}{4}$	1·759	$1\frac{3}{4}$	1·736	$1\frac{3}{4}$	2
$2\frac{1}{2}$	2·223	$2\frac{1}{4}$	2·188	$2\frac{1}{4}$	2·154	$2\frac{1}{4}$	2·120	2	$2\frac{1}{2}$
3	2·624	$2\frac{1}{2}$	2·577	$2\frac{1}{2}$	2·531	$2\frac{1}{2}$	2·487	$2\frac{1}{2}$	3
$3\frac{1}{2}$	3·012	3	2·952	3	2·893	3	2·836	$2\frac{3}{4}$	$3\frac{1}{2}$
4	3·387	$3\frac{1}{2}$	3·312	$3\frac{1}{4}$	3·240	$3\frac{1}{4}$	3·170	$3\frac{1}{4}$	4
$4\frac{1}{2}$	3·750	$3\frac{3}{4}$	3·659	$3\frac{3}{4}$	3·572	$3\frac{1}{2}$	3·488	$3\frac{1}{2}$	$4\frac{1}{2}$
5	4·100	4	3·993	4	3·890	4	3·791	$3\frac{3}{4}$	5
$5\frac{1}{2}$	4·439	$4\frac{1}{2}$	4·314	$4\frac{1}{4}$	4·194	$4\frac{1}{4}$	4·080	4	$5\frac{1}{2}$
6	4·767	$4\frac{3}{4}$	4·623	$4\frac{1}{2}$	4·486	$4\frac{1}{2}$	4·355	$4\frac{1}{4}$	6
$6\frac{1}{2}$	5·083	5	4·920	5	4·765	$4\frac{3}{4}$	4·618	$4\frac{1}{2}$	$6\frac{1}{2}$
7	5·389	$5\frac{1}{2}$	5·206	$5\frac{1}{4}$	5·033	5	4·868	$4\frac{3}{4}$	7
$7\frac{1}{2}$	5·685	$5\frac{3}{4}$	5·482	$5\frac{1}{2}$	5·289	$5\frac{1}{4}$	5·107	5	$7\frac{1}{2}$
8	5·971	6	5·747	$5\frac{3}{4}$	5·535	$5\frac{1}{2}$	5·335	$5\frac{1}{4}$	8
$8\frac{1}{2}$	6·248	$6\frac{1}{4}$	6·002	6	5·770	$5\frac{3}{4}$	5·552	$5\frac{1}{2}$	$8\frac{1}{2}$
9	6·515	$6\frac{1}{2}$	6·247	$6\frac{1}{4}$	5·995	6	5·759	$5\frac{3}{4}$	9
$9\frac{1}{2}$	6·774	$6\frac{3}{4}$	6·483	$6\frac{1}{2}$	6·211	$6\frac{1}{4}$	5·956	6	$9\frac{1}{2}$
10	7·024	7	6·710	$6\frac{3}{4}$	6·418	$6\frac{1}{2}$	6·145	$6\frac{1}{4}$	10
$10\frac{1}{2}$	7·265	$7\frac{1}{4}$	6·929	7	6·616	$6\frac{1}{2}$	6·324	$6\frac{1}{4}$	$10\frac{1}{2}$
11	7·499	$7\frac{1}{2}$	7·139	$7\frac{1}{4}$	6·805	$6\frac{3}{4}$	6·495	$6\frac{1}{2}$	11
$11\frac{1}{2}$	7·724	$7\frac{3}{4}$	7·341	$7\frac{1}{4}$	6·987	7	6·658	$6\frac{3}{4}$	$11\frac{1}{2}$
12	7·943	8	7·536	$7\frac{1}{2}$	7·161	$7\frac{1}{4}$	6·814	$6\frac{3}{4}$	12
$12\frac{1}{2}$	8·154	$8\frac{1}{4}$	7·723	$7\frac{3}{4}$	7·327	$7\frac{1}{4}$	6·962	7	$12\frac{1}{2}$
13	8·358	$8\frac{1}{4}$	7·904	8	7·487	$7\frac{1}{2}$	7·103	7	13
$13\frac{1}{2}$	8·555	$8\frac{1}{2}$	8·077	8	7·640	$7\frac{3}{4}$	7·238	$7\frac{1}{4}$	$13\frac{1}{2}$
*14	8·745	$8\frac{3}{4}$	8·244	$8\frac{1}{4}$	7·786	$7\frac{3}{4}$	7·367	$7\frac{1}{4}$	14
$14\frac{1}{2}$	8·930	9	8·405	$8\frac{1}{2}$	7·926	8	7·489	$7\frac{1}{2}$	$14\frac{1}{2}$
15	9·108	9	8·559	$8\frac{1}{2}$	8·061	8	7·606	$7\frac{1}{2}$	15

EXAMPLE.—A lease or annuity for 14 years, to make 7 per cent., and to get back the principal, is worth 8·745, or  $8\frac{3}{4}$  years purchase of the clear annual rent; at 8 per cent. 8·244, or  $8\frac{1}{4}$  years purchase; at 9 per cent. 7·786, or  $7\frac{3}{4}$  years purchase; at 10 per cent. 7·367, or  $7\frac{1}{4}$  years purchase.

The clear annual rent must, in all cases, be ascertained, by deducting from the estimated or improved rent of the estate, the reserved rent, if any, and all taxes and other annual charges.



TABLE I.—(Continued.)

For the *Purchasing* of Leases, Estates, or Annuities, for terms of years certain, at the several rates of 3, 4, 5, 6, 7, 8, 9, and 10 per cent. interest, which the purchaser may thereby make of his money.

Yrs.	Years Purchase. 7 per Cent.		Years Purchase. 8 per Cent.		Years Purchase. 9 per Cent.		Years Purchase. 10 per Cent.		Yrs.
15½	12·252	12¼	11·388	11½	10·612	10½	9·912	10	15½
16	12·561	12½	11·652	11¾	10·838	10¾	10·106	10	16
16½	12·866	12¾	11·911	12	11·059	11	10·294	10¼	16½
17	13·166	13¼	12·166	12¼	11·274	11¼	10·477	10½	17
17½	13·452	13½	12·415	12½	11·484	11½	10·655	10¾	17½
18	13·754	13¾	12·659	12¾	11·690	11¾	10·828	10¾	18
18½	14·041	14	12·899	13	11·890	12	10·995	11	18½
19	14·324	14¼	13·134	13¼	12·085	12	11·158	11¼	19
19½	14·603	14½	13·364	13½	12·276	12¼	11·316	11½	19½
20	14·877	15	13·590	13½	12·462	12½	11·470	11½	20
20½	15·148	15¼	13·812	13¾	12·644	12¾	11·619	11½	20½
*21	15·415	15½	14·029	14	12·821	12¾	11·764	11¾	21
21½	15·678	15¾	14·242	14¼	12·994	13	11·905	12	21½
22	15·937	16	14·451	14½	13·163	13¼	12·042	12	22
22½	16·192	16¼	14·656	14¾	13·328	13½	12·174	12¼	22½
23	16·444	16½	14·857	14¾	13·489	13½	12·303	12½	23
23½	16·691	16¾	15·054	15	13·645	13¾	12·429	12½	23½
24	16·936	17	15·247	15¼	13·799	13¾	12·550	12½	24
24½	17·176	17¼	15·436	15½	13·948	14	12·669	12¾	24½
25	17·413	17½	15·622	15½	14·094	14	12·783	12¾	25
25½	17·647	17¾	15·804	15¾	14·236	14¼	12·895	13	25½
26	17·877	18	15·983	16	14·375	14½	13·003	13	26
26½	18·104	18	16·158	16¼	14·511	14½	13·108	13	26½
27	18·327	18¼	16·330	16½	14·643	14¾	13·211	13¼	27
27½	18·547	18½	16·498	16½	14·772	14¾	13·310	13½	27½
28	18·764	18¾	16·663	16¾	14·898	15	13·406	13½	28
28½	18·978	19	16·825	16¾	15·021	15	13·500	13½	28½
29	19·188	19¼	16·984	17	15·141	15¼	13·591	13½	29
29½	19·396	19½	17·139	17¼	15·258	15¼	13·679	13¾	29½
30	19·600	19½	17·292	17¼	15·372	15½	13·765	13¾	30

\* EXAMPLE.—A lease or annuity for 21 years, to make 3 per cent., and to get back the principal, is worth 15·415, or 15½ years purchase of the clear annual rent ; at 4 per cent. 14·029, or 14 years purchase ; at 5 per cent. 12·821, or 12¾ years purchase ; at 6 per cent. 11·764, or 11¾ years purchase.

TABLE I.—(Continued.)

For the *Purchasing* of Leases, Estates, or Annuities for terms of years certain, at the several rates of 3, 4, 5, 6, 7, 8, 9, and 10 per Cent. Interest, which the purchaser may thereby make of his money.

Yrs.	Years Purchase 7 per Cent.		Years Purchase 8 per Cent.		Years Purchase 9 per Cent.		Years Purchase 10 per Cent.		Yrs.
15½	9·280	9¼	8·708	8¾	8·189	8¼	7·717	7¾	15½
16	9·447	9½	8·851	8¾	8·313	8½	7·824	7¾	16
16½	9·608	9½	8·989	9	8·431	8½	7·925	8	16½
17	9·763	9¾	9·122	9	8·544	8½	8·022	8	17
17½	9·914	10	9·249	9¼	8·652	8¾	8·114	8	17½
18	10·059	10	9·372	9¼	8·756	8¾	8·201	8¼	18
18½	10·200	10¼	9·490	9½	8·855	8¾	8·285	8½	18½
19	10·336	10½	9·604	9½	8·950	9	8·365	8½	19
19½	10·467	10½	9·713	9¾	9·041	9	8·441	8½	19½
20	10·594	10½	9·818	9¾	9·129	9¼	8·514	8½	20
20½	10·717	10¾	9·919	10	9·212	9¼	8·583	8½	20½
* 21	10·836	10¾	10·017	10	9·292	9¼	8·649	8½	21
21½	10·950	11	10·111	10	9·369	9½	8·712	8¾	21½
22	11·061	11	10·201	10¼	9·442	9½	8·772	8¾	22
22½	11·168	11¼	10·288	10¼	9·513	9½	8·829	8¾	22½
23	11·272	11¼	10·371	10½	9·580	9½	8·883	9	23
23½	11·372	11¼	10·451	10½	9·645	9¾	8·935	9	23½
24	11·469	11½	10·529	10½	9·707	9¾	8·985	9	24
24½	11·563	11½	10·603	10½	9·766	9¾	9·032	9	24½
25	11·654	11¾	10·675	10¾	9·823	9¾	9·077	9	25
25½	11·741	11¾	10·744	10¾	9·877	10	9·120	9	25½
26	11·826	11¾	10·810	10¾	9·929	10	9·161	9¼	26
26½	11·908	12	10·874	10¾	9·979	10	9·200	9¼	26½
27	11·987	12	10·935	11	10·027	10	9·237	9¼	27
27½	12·063	12	10·994	11	10·072	10	9·273	9¼	27½
28	12·137	12¼	11·051	11	10·116	10	9·307	9¼	28
28½	12·209	12¼	11·106	11	10·158	10¼	9·339	9¼	28½
29	12·278	12½	11·158	11¼	10·198	10½	9·370	9½	29
29½	12·344	12½	11·209	11¼	10·237	10½	9·399	9½	29½
30	12·409	12½	11·258	11¼	10·274	10½	9·427	9½	30

\* EXAMPLE.—A lease or annuity for 21 years to make 7 per cent. and to get back the principal is worth 10·836, or 10¾ years purchase of the clear annual rent. At 8 per cent. 10·017, or 10 years purchase. At 9 per cent. 9·292, or 9¼ years purchase. At 10 per cent. 8·649, or 8½ years purchase.

TABLE I.—(Continued.)

For the *Purchasing* of Leases, Estates, or Annuities, for Terms of Years certain, at the several Rates of 3, 4, 5, 6, 7, 8, 9, and 10 per Cent. Interest, which the Purchaser may thereby make of his Money.

Yrs.	Years Purchase. 3 per Cent.		Years Purchase. 4 per Cent.		Years Purchase. 5 per Cent.		Years Purchase. 6 per Cent.		Yrs.
30½	19·802	19¾	17·442	17½	15·484	15½	13·848	13¾	30½
*31	20·000	20	17·588	17½	15·593	15½	13·929	14	31
31½	20·196	20¼	17·732	17¾	15·699	15¾	14·008	14	31½
32	20·389	20½	17·874	17¾	15·803	15¾	14·084	14	32
32½	20·579	20½	18·012	18	15·904	16	14·158	14¼	32½
33	20·766	20¾	18·148	18¼	16·003	16	14·230	14¼	33
33½	20·950	21	18·281	18¼	16·099	16	14·300	14¼	33½
34	21·132	21¼	18·411	18½	16·193	16¼	14·368	14¼	34
34½	21·311	21¼	18·539	18½	16·285	16¼	14·434	14½	34½
35	21·487	21½	18·665	18¾	16·374	16¼	14·498	14½	35
35½	21·661	21¾	18·788	18¾	16·462	16½	14·561	14½	35½
36	21·832	21¾	18·908	19	16·547	16½	14·621	14½	36
36½	22·001	22	19·027	19	16·630	16¾	14·680	14¾	36½
37	22·167	22¼	19·143	19¼	16·711	16¾	14·737	14¾	37
37½	22·331	22¼	19·256	19¼	16·791	16¾	14·792	14¾	37½
38	22·492	22½	19·368	19¼	16·868	16¾	14·846	14¾	38
38½	22·652	22¾	19·477	19½	16·943	17	14·898	15	38½
39	22·808	22¾	19·584	19½	17·017	17	14·949	15	39
39½	22·963	23	19·690	19¾	17·089	17	14·998	15	39½
40	23·115	23	19·793	19¾	17·159	17¼	15·046	15	40
40½	23·265	23¼	19·894	20	17·228	17¼	15·093	15	40½
41	23·412	23½	19·993	20	17·294	17¼	15·138	15¼	41
41½	23·558	23½	20·090	20	17·360	17¼	15·182	15¼	41½
42	23·701	23¾	20·186	20¼	17·423	17½	15·225	15¼	42
42½	23·843	23¾	20·279	20¼	17·485	17½	15·266	15¼	42½
43	23·982	24	20·371	20¼	17·546	17½	15·306	15¼	43
43½	24·119	24	20·461	20½	17·605	17½	15·345	15¼	43½
44	24·254	24¼	20·549	20½	17·663	17¾	15·383	15½	44
44½	24·387	24½	20·635	20¾	17·719	17¾	15·420	15½	44½
45	24·519	24½	20·720	20¾	17·774	17¾	15·456	15½	45

\* EXAMPLE.—A lease or annuity for 31 years, to make 3 per cent., and to get back the principal, is worth 20·000, or 20 years purchase of the clear annual rent; at 4 per cent. 17·588, or 17½ years purchase; at 5 per cent. 15·593, or 15½ years purchase; at 6 per cent. 13·929, or 14 years purchase.

TABLE I.—(Continued.)

For the *Purchasing* of Leases, Estates, or Annuities for Terms of Years certain, at the several Rates of 3, 4, 5, 6, 7, 8, 9, and 10 per Cent. Interest, which the Purchaser may thereby make of his Money.

Yrs.	Years Purchase. 7 per Cent.		Years Purchase. 8 per Cent.		Years Purchase. 9 per Cent.		Years Purchase. 10 per Cent.		Yrs.
30 $\frac{1}{2}$	12·471	12 $\frac{1}{2}$	11·305	11 $\frac{1}{4}$	10·309	10 $\frac{1}{4}$	9·454	9 $\frac{1}{2}$	30 $\frac{1}{2}$
*31	12·532	12 $\frac{1}{2}$	11·350	11 $\frac{1}{4}$	10·343	10 $\frac{1}{4}$	9·479	9 $\frac{1}{2}$	31
31 $\frac{1}{2}$	12·590	12 $\frac{1}{2}$	11·393	11 $\frac{1}{2}$	10·375	10 $\frac{1}{4}$	9·503	9 $\frac{1}{2}$	31 $\frac{1}{2}$
32	12·647	12 $\frac{3}{4}$	11·435	11 $\frac{1}{2}$	10·406	10 $\frac{1}{2}$	9·526	9 $\frac{1}{2}$	32
32 $\frac{1}{2}$	12·701	12 $\frac{3}{4}$	11·475	11 $\frac{1}{2}$	10·436	10 $\frac{1}{2}$	9·548	9 $\frac{1}{2}$	32 $\frac{1}{2}$
33	12·754	12 $\frac{3}{4}$	11·514	11 $\frac{1}{2}$	10·464	10 $\frac{1}{2}$	9·569	9 $\frac{1}{2}$	33
33 $\frac{1}{2}$	12·805	12 $\frac{3}{4}$	11·551	11 $\frac{1}{2}$	10·492	10 $\frac{1}{2}$	9·589	9 $\frac{1}{2}$	33 $\frac{1}{2}$
34	12·854	12 $\frac{3}{4}$	11·587	11 $\frac{1}{2}$	10·518	10 $\frac{1}{2}$	9·609	9 $\frac{1}{2}$	34
34 $\frac{1}{2}$	12·902	13	11·621	11 $\frac{1}{2}$	10·543	10 $\frac{1}{2}$	9·627	9 $\frac{1}{2}$	34 $\frac{1}{2}$
35	12·948	13	11·655	11 $\frac{3}{4}$	10·567	10 $\frac{1}{2}$	9·644	9 $\frac{1}{2}$	35
35 $\frac{1}{2}$	12·992	13	11·686	11 $\frac{3}{4}$	10·590	10 $\frac{1}{2}$	9·661	9 $\frac{3}{4}$	35 $\frac{1}{2}$
36	13·035	13	11·717	11 $\frac{3}{4}$	10·612	10 $\frac{3}{4}$	9·677	9 $\frac{3}{4}$	36
36 $\frac{1}{2}$	13·077	13	11·747	11 $\frac{3}{4}$	10·633	10 $\frac{3}{4}$	9·692	9 $\frac{3}{4}$	36 $\frac{1}{2}$
37	13·117	13	11·775	11 $\frac{3}{4}$	10·653	10 $\frac{3}{4}$	9·706	9 $\frac{3}{4}$	37
37 $\frac{1}{2}$	13·156	13 $\frac{1}{4}$	11·803	11 $\frac{3}{4}$	10·672	10 $\frac{3}{4}$	9·720	9 $\frac{3}{4}$	37 $\frac{1}{2}$
38	13·193	13 $\frac{1}{4}$	11·829	11 $\frac{3}{4}$	10·691	10 $\frac{3}{4}$	9·733	9 $\frac{3}{4}$	38
38 $\frac{1}{2}$	13·230	13 $\frac{1}{4}$	11·854	11 $\frac{3}{4}$	10·709	10 $\frac{3}{4}$	9·745	9 $\frac{3}{4}$	38 $\frac{1}{2}$
39	13·265	13 $\frac{1}{4}$	11·879	12	10·726	10 $\frac{3}{4}$	9·757	9 $\frac{3}{4}$	39
39 $\frac{1}{2}$	13·299	13 $\frac{1}{4}$	11·902	12	10·742	10 $\frac{3}{4}$	9·768	9 $\frac{3}{4}$	39 $\frac{1}{2}$
40	13·332	13 $\frac{1}{4}$	11·925	12	10·757	10 $\frac{3}{4}$	9·779	9 $\frac{3}{4}$	40
40 $\frac{1}{2}$	13·363	13 $\frac{1}{4}$	11·946	12	10·772	10 $\frac{3}{4}$	9·789	9 $\frac{3}{4}$	40 $\frac{1}{2}$
41	13·394	13 $\frac{1}{2}$	11·967	12	10·787	10 $\frac{3}{4}$	9·799	9 $\frac{3}{4}$	41
41 $\frac{1}{2}$	13·424	13 $\frac{1}{2}$	11·987	12	10·800	10 $\frac{3}{4}$	9·808	9 $\frac{3}{4}$	41 $\frac{1}{2}$
42	13·452	13 $\frac{1}{2}$	12·007	12	10·813	10 $\frac{3}{4}$	9·817	9 $\frac{3}{4}$	42
42 $\frac{1}{2}$	13·480	13 $\frac{1}{2}$	12·025	12	10·826	10 $\frac{3}{4}$	9·826	9 $\frac{3}{4}$	42 $\frac{1}{2}$
43	13·507	13 $\frac{1}{2}$	12·043	12	10·838	10 $\frac{3}{4}$	9·834	9 $\frac{3}{4}$	43
43 $\frac{1}{2}$	13·533	13 $\frac{1}{2}$	12·060	12	10·849	10 $\frac{3}{4}$	9·842	9 $\frac{3}{4}$	43 $\frac{1}{2}$
44	13·558	13 $\frac{1}{2}$	12·077	12	10·861	10 $\frac{3}{4}$	9·849	9 $\frac{3}{4}$	44
44 $\frac{1}{2}$	13·582	13 $\frac{1}{2}$	12·093	12	10·871	10 $\frac{3}{4}$	9·856	9 $\frac{3}{4}$	44 $\frac{1}{2}$
45	13·606	13 $\frac{1}{2}$	12·108	12	10·881	11	9·863	9 $\frac{3}{4}$	45

\* EXAMPLE.—A lease or annuity for 31 years to make 7 per cent. and to get back the principal, is worth 12·532, or 12 $\frac{1}{2}$  years purchase of the clear annual rent. At 8 per cent. 11·350, or 11 $\frac{1}{4}$  years purchase. At 9 per cent. 10·343, or 10 $\frac{1}{4}$  years purchase. At 10 per cent. 9·479, or 9 $\frac{1}{2}$  years purchase.



TABLE I.—(Continued.)

For the *Purchasing* of Leases, Estates, or Annuities for Terms of Years certain, at the several Rates of 3, 4, 5, 6, 7, 8, 9, and 10 per Cent. Interest, which the Purchaser may thereby make of his Money.

Yrs.	Years Purchase. 3 per Cent.		Years Purchase. 4 per Cent.		Years Purchase. 5 per Cent.		Years Purchase. 6 per Cent.		Yrs.
45½	24·648	24½¼	20·803	20¾¼	17·828	17¾¼	15·491	15½¼	45½
46	24·775	24¾¼	20·885	21	17·880	18	15·524	15½	46
46½	24·901	25	20·965	21	17·931	18	15·557	15½	46½
47	25·025	25	21·043	21	17·981	18	15·589	15½	47
47½	25·147	25¼	21·120	21	18·030	18	15·620	15½	47½
48	25·267	25¼	21·195	21¼	18·077	18	15·650	15¾¼	48
48½	25·385	25½	21·269	21¼	18·123	18	15·679	15¾¼	48½
49	25·502	25½	21·341	21¼	18·169	18¼	15·708	15¾¼	49
49½	25·617	25½	21·413	21½	18·213	18¼	15·735	15¾¼	49½
* 50	25·730	25¾	21·482	21½	18·256	18¼	15·762	15¾	50
51	25·951	26	21·617	21½	18·339	18¼	15·813	15¾	51
52	26·166	26¼	21·748	21¾¼	18·418	18½	15·861	15¾	52
53	26·375	26¼	21·873	21¾	18·493	18½	15·907	16	53
54	26·578	26½	21·993	22	18·565	18½	15·950	16	54
55	26·774	26¾	22·109	22	18·633	18¾	15·991	16	55
56	26·965	27	22·220	22¼	18·699	18¾	16·029	16	56
57	27·151	27¼	22·327	22¼	18·761	18¾	16·065	16	57
58	27·331	27¼	22·430	22½	18·820	18¾	16·099	16	58
59	27·506	27½	22·528	22½	18·876	19	16·131	16¼	59
60	27·676	27¾	22·623	22½	18·929	19	16·161	16¼	60
65	28·453	28½	23·047	23	19·161	19¼	16·289	16¼	65
70	29·123	29	23·395	23½	19·343	19¼	16·385	16½	70
75	29·702	29¾	23·680	23¾	19·485	19½	16·456	16½	75
80	30·201	30¼	23·915	24	19·596	19½	16·509	16½	80
85	30·631	30¾	24·109	24	19·684	19¾	16·549	16½	85
90	31·002	31	24·267	24¼	19·752	19¾	16·579	16½	90
95	31·323	31¼	24·398	24½	19·806	19¾	16·601	16½	95
100	31·599	31½	24·505	24½	19·848	19¾	16·618	16½	100
Perp	33·333	33¼	25·000	25	20·000	20	16·667	16¾	Perp

\* EXAMPLE.—A lease or annuity for 50 years to make 3 per cent. and to get back the principal, is worth 25·730, or 25¾ years purchase of the clear annual rent. At 4 per cent. 21·482, or 21½ years purchase. At 5 per cent. 18·256, or 18¼ years purchase. At 6 per cent. 15·762, or 15¾ years purchase.

Advowson, or right of presentation to a Church, to be considered as a perpetuity at 20 years purchase (5 per cent.) The clear annual income must be ascertained, and the expense of a curate (probably £100 per annum), and all other annual charges, deducted, so as to form a clear annual income.



TABLE I.—(Continued.)

For the *Purchasing* of Leases, Estates, or Annuities, for Terms of Years certain, at the several Rates of 3, 4, 5, 6, 7, 8, 9, and 10 per Cent. Interest, which the Purchaser may thereby make of his Money.

Yrs.	Years Purchase. 7 per Cent.		Years Purchase. 8 per Cent.		Years Purchase. 9 per Cent.		Years Purchase. 10 per Cent.		Yrs.
45½	13·628	13¾	12·123	12	10·891	11	9·869	9¾	45½
46	13·650	13¾	12·137	12½	10·900	11	9·875	10	46
46½	13·671	13¾	12·151	12½	10·909	11	9·881	10	46½
47	13·692	13¾	12·164	12½	10·918	11	9·887	10	47
47½	13·711	13¾	12·177	12½	10·926	11	9·892	10	47½
48	13·730	13¾	12·189	12½	10·934	11	9·897	10	48
48½	13·749	13¾	12·201	12½	10·941	11	9·902	10	48½
49	13·767	13¾	12·212	12½	10·948	11	9·906	10	49
49½	13·784	13¾	12·223	12½	10·955	11	9·911	10	49½
*50	13·801	13¾	12·233	12½	10·962	11	9·915	10	50
51	13·832	13¾	12·253	12½	10·974	11	9·921	10	51
52	13·862	13¾	12·272	12½	10·985	11	9·930	10	52
53	13·890	14	12·288	12½	10·996	11	9·936	10	53
54	13·916	14	12·304	12½	11·005	11	9·942	10	54
55	13·940	14	12·319	12½	11·014	11	9·947	10	55
56	13·963	14	12·332	12½	11·022	11	9·952	10	56
57	13·984	14	12·344	12½	11·029	11	9·956	10	57
58	14·003	14	12·356	12½	11·036	11	9·960	10	58
59	14·022	14	12·367	12½	11·042	11	9·964	10	59
60	14·039	14	12·377	12½	11·048	11	9·967	10	60
65	14·110	14	12·416	12½	11·070	11	9·980	10	65
70	14·160	14½	12·443	12½	11·084	11	9·987	10	70
75	14·196	14½	12·461	12½	11·094	11	9·992	10	75
80	14·222	14½	12·474	12½	11·100	11	9·995	10	80
85	14·240	14½	12·482	12½	11·104	11	9·997	10	85
90	14·253	14½	12·488	12½	11·106	11	9·998	10	90
95	14·263	14½	12·492	12½	11·108	11	9·999	10	95
100	14·269	14½	12·494	12½	11·109	11	9·999	10	100
Perp	14·286	14½	12·500	12½	11·111	11	10·000	10	Perp

EXAMPLE.—A lease or annuity for 50 years, to make 7 per cent., and to get back the principal, is worth 13·801, or 13¾ years purchase of the clear annual rent; at 8 per cent. 12·233, or 12½ years purchase; at 9 per cent. 10·962, or 11 years purchase; at 10 per cent. 9·915, or 10 years purchase.

TABLE II.

For the *Purchasing* of Leases, Estates, or Annuities, held on the Longest of Two Lives, at the several Rates of 3, 4, 5, and 6 per Cent. Interest, which the Purchaser may thereby make of his Money.

Ages.	Years Purchase. 3 per Cent.		Years Purchase. 4 per Cent.		Years Purchase. 5 per Cent.		Years Purchase. 6 per Cent.	
5—5	25·308	$25\frac{1}{4}$	20·005	21	17·670	$17\frac{3}{4}$	15·260	$15\frac{1}{4}$
5—15	24·739	$24\frac{3}{4}$	20·560	$20\frac{1}{2}$	17·461	$17\frac{1}{2}$	15·125	15
5—25	23·986	24	20·053	20	17·113	17	14·854	$14\frac{3}{4}$
5—35	23·275	$23\frac{1}{4}$	19·555	$19\frac{1}{2}$	16·757	$16\frac{3}{4}$	14·576	$14\frac{1}{2}$
5—45	22·568	$22\frac{1}{2}$	19·031	19	16·362	$16\frac{1}{4}$	14·252	$14\frac{1}{4}$
5—55	21·916	22	18·518	$18\frac{1}{2}$	15·953	16	13·931	14
5—65	21·348	$21\frac{1}{4}$	18·046	18	15·553	$15\frac{1}{2}$	13·592	$13\frac{1}{2}$
5—75	20·904	21	17·653	$17\frac{3}{4}$	15·209	$15\frac{1}{4}$	13·302	$13\frac{1}{4}$
15—15	24·015	24	20·171	$20\frac{1}{4}$	17·216	$17\frac{1}{4}$	14·954	15
15—25	23·241	$23\frac{1}{4}$	19·599	$19\frac{1}{2}$	16·831	$16\frac{3}{4}$	14·665	$14\frac{3}{4}$
15—35	22·444	$22\frac{1}{2}$	19·043	19	16·435	$16\frac{1}{2}$	14·368	$14\frac{1}{4}$
15—45	21·662	$21\frac{3}{4}$	18·467	$18\frac{1}{2}$	16·003	16	14·027	14
15—55	20·957	21	17·915	18	15·567	$15\frac{1}{2}$	13·674	$13\frac{3}{4}$
15—65	20·364	$20\frac{1}{4}$	17·425	$17\frac{1}{2}$	15·155	$15\frac{1}{4}$	13·343	$13\frac{1}{4}$
15—75	19·945	20	17·058	17	14·837	$14\frac{3}{4}$	13·069	13
25—25	22·245	$22\frac{1}{4}$	18·932	19	16·370	$16\frac{1}{4}$	14·382	$14\frac{1}{2}$
25—35	21·289	$21\frac{1}{4}$	18·260	$18\frac{1}{4}$	15·894	16	13·979	14
* 25—45	20·342	$20\frac{1}{4}$	17·561	$17\frac{1}{2}$	15·368	$15\frac{1}{4}$	13·569	$13\frac{1}{2}$
25—55	19·480	$19\frac{1}{2}$	16·885	17	14·833	$14\frac{3}{4}$	13·142	$13\frac{1}{4}$
25—65	18·748	$18\frac{3}{4}$	16·279	$16\frac{1}{4}$	14·324	$14\frac{1}{4}$	12·719	$12\frac{3}{4}$
25—75	18·214	$18\frac{1}{4}$	15·811	$15\frac{3}{4}$	13·915	14	12·369	$12\frac{1}{4}$
35—35	20·154	$20\frac{1}{4}$	17·466	$17\frac{1}{2}$	15·324	$15\frac{1}{4}$	13·557	$13\frac{1}{2}$
35—45	19·008	19	16·616	$16\frac{1}{2}$	14·686	$14\frac{1}{4}$	13·070	13
35—55	17·957	18	15·792	$15\frac{3}{4}$	14·035	14	12·547	$12\frac{1}{2}$
35—65	17·065	17	15·053	15	13·414	$13\frac{1}{2}$	12·024	12
35—75	16·417	$16\frac{1}{2}$	14·485	$14\frac{1}{2}$	12·919	13	11·614	$11\frac{1}{2}$
45—45	17·608	$17\frac{1}{2}$	15·576	$15\frac{1}{2}$	13·898	14	12·463	$12\frac{1}{2}$
45—55	16·285	$16\frac{1}{4}$	14·536	$14\frac{1}{2}$	13·076	13	11·809	$11\frac{3}{4}$
45—65	15·146	$15\frac{1}{4}$	13·591	$13\frac{1}{2}$	12·283	$12\frac{1}{4}$	11·252	$11\frac{1}{4}$
45—75	14·311	$14\frac{1}{4}$	12·859	$12\frac{3}{4}$	11·643	$11\frac{3}{4}$	10·594	$10\frac{1}{2}$
55—55	14·619	$14\frac{1}{2}$	13·223	$13\frac{1}{4}$	12·029	12	10·965	11
55—65	13·120	13	11·976	12	10·983	11	10·100	10
55—75	11·999	12	10·992	11	10·120	10	9·342	$9\frac{1}{4}$
65—75	9·545	$9\frac{1}{2}$	8·917	9	8·351	$8\frac{1}{4}$	7·834	$7\frac{3}{4}$

\* EXAMPLE.—A lease or annuity to continue during the existence of either of two lives, whose ages are 25 and 45, to make 3 per cent. and get back the principal, is worth 20·342, or  $20\frac{1}{4}$  years purchase of the clear annual rent; at 4 per cent. 17·561, or  $17\frac{1}{2}$  years purchase; at 5 per cent. 15·368, or  $15\frac{1}{4}$  years purchase; at 6 per cent. 13·569, or  $13\frac{1}{2}$  years purchase.

TABLE II.—(Continued.)

For the *Purchasing* of Leases, Estates, or Annuities, held on the Longest of Two Lives, at the several Rates of 3, 4, 5, and 6 per Cent. Interest, which the Purchaser may thereby make of his Money.

Ages.	Years Purchase. 3 per Cent.		Years Purchase. 4 per Cent.		Years purchase. 5 per Cent.		Years Purchase. 6 per Cent.	
10—10	24·987	25	20·769	20 $\frac{3}{4}$	17·613	17 $\frac{1}{2}$	15·225	15 $\frac{1}{4}$
10—20	24·150	24 $\frac{1}{4}$	20·201	20 $\frac{1}{4}$	17·240	17 $\frac{1}{4}$	14·964	15
10—30	23·435	23 $\frac{1}{2}$	19·718	19 $\frac{3}{4}$	16·907	17	14·728	14 $\frac{3}{4}$
10—40	22·720	22 $\frac{3}{4}$	19·207	19 $\frac{1}{4}$	16·534	16 $\frac{1}{2}$	14·453	14 $\frac{1}{2}$
10—50	22·055	22	18·702	18 $\frac{3}{4}$	16·148	16 $\frac{1}{4}$	14·154	14 $\frac{1}{4}$
10—60	21·488	21 $\frac{1}{2}$	18·248	18 $\frac{1}{4}$	15·781	15 $\frac{3}{4}$	13·855	13 $\frac{3}{4}$
10—70	21·050	21	17·876	18	15·462	15 $\frac{1}{2}$	13·383	13 $\frac{1}{2}$
10—80	20·797	20 $\frac{3}{4}$	17·649	17 $\frac{3}{4}$	15·259	15 $\frac{1}{4}$	13·398	13 $\frac{1}{2}$
20—20	23·143	23 $\frac{1}{4}$	19·531	19 $\frac{1}{2}$	16·782	16 $\frac{3}{4}$	14·640	14 $\frac{3}{4}$
20—30	22·274	22 $\frac{1}{4}$	18·941	19	16·372	16 $\frac{1}{4}$	14·348	14 $\frac{1}{4}$
*2 —40	21·390	21 $\frac{1}{2}$	18·306	18 $\frac{1}{4}$	15·907	16	14·003	14
20—50	20·551	20 $\frac{1}{2}$	17·667	17 $\frac{3}{4}$	15·415	15 $\frac{1}{2}$	13·620	13 $\frac{1}{2}$
20—60	19·818	19 $\frac{3}{4}$	17·077	17	14·936	15	13·228	13 $\frac{1}{4}$
20—70	19·223	19 $\frac{1}{4}$	16·568	16 $\frac{1}{2}$	14·498	14 $\frac{1}{2}$	12·852	12 $\frac{3}{4}$
20—80	18·850	18 $\frac{3}{4}$	16·233	16 $\frac{1}{4}$	14·197	14 $\frac{1}{4}$	12·578	12 $\frac{1}{2}$
30—30	20·255	21 $\frac{1}{4}$	18·249	18 $\frac{1}{4}$	15·889	16	14·004	14
30—40	20·202	20 $\frac{1}{4}$	17·488	17 $\frac{1}{2}$	15·333	15 $\frac{1}{4}$	13·592	13 $\frac{1}{2}$
30—50	19·198	19 $\frac{1}{4}$	16·724	16 $\frac{3}{4}$	14·745	14 $\frac{3}{4}$	13·133	13 $\frac{1}{4}$
30—60	18·321	18 $\frac{1}{4}$	16·018	16	14·172	14 $\frac{1}{4}$	12·655	12 $\frac{3}{4}$
30—70	17·613	17 $\frac{1}{2}$	15·413	15 $\frac{1}{2}$	13·653	13 $\frac{3}{4}$	12·218	12 $\frac{1}{4}$
30—80	17·173	17 $\frac{1}{4}$	15·018	15	13·297	13 $\frac{1}{4}$	11·895	12
40—40	18·932	19	16·574	16 $\frac{1}{2}$	14·658	14 $\frac{3}{4}$	13·088	13
40—50	17·694	17 $\frac{3}{4}$	15·627	15 $\frac{3}{4}$	13·929	14	12·520	12 $\frac{1}{2}$
40—60	16·600	16 $\frac{1}{2}$	14·746	14 $\frac{3}{4}$	13·214	13 $\frac{1}{4}$	11·935	12
40—70	15·711	15 $\frac{3}{4}$	13·987	14	12·562	12 $\frac{1}{2}$	11·374	11 $\frac{1}{4}$
40—80	15·160	15 $\frac{1}{4}$	13·491	13 $\frac{1}{2}$	12·116	12 $\frac{1}{4}$	10·969	11
50—50	16·158	16 $\frac{1}{4}$	14·447	14 $\frac{1}{2}$	13·016	13	11·804	11 $\frac{3}{4}$
50—60	14·752	14 $\frac{3}{4}$	13·314	13 $\frac{1}{4}$	12·093	12	11·048	11
50—70	13·588	13 $\frac{1}{2}$	12·319	12 $\frac{1}{4}$	11·238	11 $\frac{1}{4}$	10·311	10 $\frac{1}{4}$
50—80	12·855	12 $\frac{3}{4}$	11·660	11 $\frac{3}{4}$	10·644	10 $\frac{3}{4}$	9·772	9 $\frac{1}{4}$
60—60	12·948	13	11·852	11 $\frac{3}{4}$	10·896	10 $\frac{3}{4}$	10·061	10
60—70	11·372	11 $\frac{1}{4}$	10·500	10 $\frac{1}{2}$	9·735	9 $\frac{1}{4}$	9·058	9
60—80	10·361	10 $\frac{1}{4}$	9·590	9 $\frac{1}{2}$	8·915	9	8·315	8 $\frac{1}{4}$
70—70	9·207	9 $\frac{1}{4}$	8·635	8 $\frac{3}{4}$	8·116	8	7·651	7 $\frac{3}{4}$

EXAMPLE.—A lease or annuity to continue during the existence of either of two lives, whose ages are 20 and 40, to make 3 per cent. and to get back the principal, is worth 21·390, or 21 $\frac{1}{2}$  years purchase of the clear annual rent: at 4 per cent. 18·306, or 18 $\frac{1}{4}$  years purchase; at 5 per cent. 15·907, or 16 years purchase; at 6 per cent. 14·003, or 14 years purchase.

TABLE III.

For *Renewing* any Number of Years lapsed or expired in a Lease originally granted for Twenty-one Years, at the several rates of 3, 4, 5, 6, 7, 8, and 10 per Cent. Interest. The last column is at the Rate of £11,564, or £11 11s. 3d. per Cent. at which Rate of Interest the renewing Fine of One Year's Rent every Seven Years is calculated.

Years.	Years Purchase. 3 per Cent.		Years Purchase. 4 per Cent.		Years Purchase. 5 per Cent.		Years Purchase. 6 per Cent.		Years
1	·538	$\frac{1}{2}$	·439	$\frac{1}{2}$	·359	$\frac{1}{4}$	·294	$\frac{1}{4}$	1
2	1·091	1	·895	1	·736	$\frac{3}{4}$	·606	$\frac{1}{2}$	2
3	1·661	$1\frac{3}{4}$	1·370	$1\frac{1}{4}$	1·132	$1\frac{1}{4}$	·936	1	3
4	2·249	2	1·863	$1\frac{3}{4}$	1·547	$1\frac{1}{2}$	1·287	$1\frac{1}{4}$	4
5	2·854	$2\frac{3}{4}$	2·377	$2\frac{1}{2}$	1·983	2	1·658	$1\frac{3}{4}$	5
6	3·477	$3\frac{1}{2}$	2·911	3	2·441	$2\frac{1}{2}$	2·052	2	6
*7	4·119	4	3·466	$3\frac{1}{2}$	2·922	3	2·469	$2\frac{1}{2}$	7
8	4·780	$4\frac{3}{4}$	4·043	4	3·428	$3\frac{1}{2}$	2·911	3	8
9	5·461	$5\frac{1}{2}$	4·644	$4\frac{3}{4}$	3·958	4	3·380	$3\frac{1}{2}$	9
10	6·162	$6\frac{1}{4}$	5·269	$5\frac{1}{4}$	4·515	$4\frac{1}{2}$	3·877	4	10
11	6·885	7	5·918	6	5·099	5	4·404	$4\frac{1}{2}$	11
12	7·629	$7\frac{3}{4}$	6·594	$6\frac{1}{2}$	5·713	$5\frac{3}{4}$	4·962	5	12
13	8·395	$8\frac{1}{2}$	7·296	$7\frac{1}{4}$	6·358	$6\frac{1}{2}$	5·554	$5\frac{1}{2}$	13
14	9·185	$9\frac{1}{4}$	8·027	8	7·035	7	6·182	$6\frac{1}{4}$	14
15	9·998	10	8·787	$8\frac{3}{4}$	7·745	$7\frac{3}{4}$	6·847	$6\frac{3}{4}$	15
16	10·835	$10\frac{3}{4}$	9·577	$9\frac{1}{2}$	8·492	$8\frac{1}{2}$	7·552	$7\frac{1}{2}$	16
17	11·698	$11\frac{3}{4}$	10·399	$10\frac{1}{2}$	9·275	$9\frac{1}{4}$	8·299	$8\frac{1}{4}$	17
18	12·586	$12\frac{1}{2}$	11·254	$11\frac{1}{4}$	10·098	10	9·091	9	18
19	13·502	$13\frac{1}{2}$	12·143	$12\frac{1}{4}$	10·962	11	9·931	10	19
20	14·444	$14\frac{1}{2}$	13·068	13	11·869	$11\frac{3}{4}$	10·821	$10\frac{3}{4}$	20
21	15·415	$15\frac{1}{2}$	14·029	14	12·821	$12\frac{3}{4}$	11·764	$11\frac{3}{4}$	21

\* EXAMPLE.—The sum or fine which a tenant ought to give for the renewal of 7 years lapsed in his lease of 21 years, in order that he may make 3 per cent. interest of his money, is 4·119, or 4 years purchase of the clear improved rent, or annual value of the estate, after deducting the reserved or quit rent, and all taxes and other annual charges. At 4 per cent. 3·466, or  $3\frac{1}{2}$  years purchase. At 5 per cent. 2·922, or 3 years purchase. At 6 per cent. 2·469, or  $2\frac{1}{2}$  years purchase.



TABLE III.—(Continued.)

For *Renewing* any Number of Years lapsed or expired in a Lease originally granted for Twenty-one Years, at the several Rates of 3, 4, 5, 6, 7, 8, and 10 per Cent. Interest. The last column is at the Rate of £11,564, or £11 11s. 3d. per Cent. at which rate of Interest the renewing Fine of One Year's Rent every Seven Years is calculated.

Years.	Years Purchase. 7 per Cent.		Years Purchase. 8 per Cent.		Years Purchase. 10 per Cent.		Years Purchase. £11,564 or £11 11s. 3d. per Cent.		Years
1	·242	$\frac{1}{4}$	·199	$\frac{1}{2}$	·135	$\frac{1}{3}$	·100	$\frac{1}{10}$	1
2	·500	$\frac{1}{2}$	·413	$\frac{1}{1}$	·284	$\frac{1}{2}$	·213	$\frac{1}{5}$	2
3	·776	$\frac{3}{4}$	·645	$\frac{1}{2}$	·447	$\frac{2}{3}$	·338	$\frac{1}{3}$	3
4	1·072	1	·895	1	·627	$\frac{2}{3}$	·477	$\frac{1}{2}$	4
5	1·389	$1\frac{1}{2}$	1·165	$1\frac{1}{4}$	·825	$\frac{3}{4}$	·633	$\frac{1}{3}$	5
6	1·728	$1\frac{3}{4}$	1·457	$1\frac{1}{2}$	1·043	1	·806	$\frac{3}{4}$	6
*7	2·090	2	1·773	$1\frac{3}{4}$	1·282	$1\frac{1}{4}$	1·000	1	7
8	2·478	$2\frac{1}{2}$	2·113	2	1·545	$1\frac{1}{2}$	1·216	$1\frac{1}{4}$	8
9	2·893	3	2·481	$2\frac{1}{2}$	1·835	$1\frac{3}{4}$	1·457	$1\frac{1}{2}$	9
10	3·337	$3\frac{1}{4}$	2·878	3	2·154	$2\frac{1}{4}$	1·726	$1\frac{3}{4}$	10
11	3·812	$3\frac{3}{4}$	3·307	$3\frac{1}{4}$	2·504	$2\frac{1}{2}$	2·026	2	11
12	4·320	$4\frac{1}{4}$	3·770	$3\frac{3}{4}$	2·890	3	2·361	$2\frac{1}{4}$	12
13	4·864	$4\frac{3}{4}$	4·270	$4\frac{1}{4}$	3·314	$3\frac{1}{4}$	2·734	$2\frac{3}{4}$	13
14	5·446	$5\frac{1}{2}$	4·810	$4\frac{3}{4}$	3·780	$3\frac{3}{4}$	3·151	$3\frac{1}{4}$	14
15	6·069	6	5·394	$5\frac{1}{2}$	4·293	$4\frac{1}{4}$	3·616	$3\frac{1}{2}$	15
16	6·735	$6\frac{3}{4}$	6·024	6	4·858	$4\frac{3}{4}$	4·135	$4\frac{1}{4}$	16
17	7·448	$7\frac{1}{2}$	6·705	$6\frac{3}{4}$	5·479	$5\frac{1}{2}$	4·713	$4\frac{3}{4}$	17
18	8·211	$8\frac{1}{4}$	7·440	$7\frac{1}{2}$	6·162	$6\frac{1}{4}$	5·359	$5\frac{1}{4}$	18
19	9·028	9	8·234	$8\frac{1}{4}$	6·913	7	6·079	6	19
20	9·901	10	9·091	9	7·740	$7\frac{3}{4}$	6·882	$6\frac{3}{4}$	20
21	10·836	$10\frac{3}{4}$	10·017	10	8·649	$8\frac{3}{4}$	7·779	$7\frac{3}{4}$	21

\* EXAMPLE.—The sum or fine which a tenant ought to give for the renewal of 7 years lapsed in his lease of 21 years, in order that he may make 7 per cent. interest of his money, is 2·090, or two years purchase of the clear improved rent, or annual value of the estate, after deducting the reserved or quit rent, and all taxes and other annual charges. At 8 per cent. 1·773, or  $1\frac{3}{4}$  years purchase. At 10 per cent. 1·282, or  $1\frac{1}{4}$  years purchase. At £11 11s. 3d. per cent. 1·000, or 1 year's purchase.



TABLE IV.

Showing the present Value of a *Reversionary* Estate in Fee, after the Life of a Person of given Age, at the several Rates of 3, 4, 5, 6, 7, and 8 per Cent. Interest (Carlisle Table of Mortality).

Age in Possession.	Years Purchase. 3 per Cent.		Years Purchase. 4 per Cent.		Years Purchase. 5 per Cent.		Age in Possession.
5	9.640	$9\frac{3}{4}$	5.406	$5\frac{1}{2}$	3.410	$3\frac{1}{2}$	5
10	9.821	$9\frac{3}{4}$	5.415	$5\frac{1}{2}$	3.331	$3\frac{1}{4}$	10
15	10.751	$10\frac{3}{4}$	6.044	6	3.773	$3\frac{3}{4}$	15
20	11.639	$11\frac{3}{4}$	6.637	$6\frac{3}{4}$	4.183	$4\frac{1}{4}$	20
25	12.668	$12\frac{3}{4}$	7.355	$7\frac{1}{4}$	4.697	$4\frac{1}{4}$	25
*30	13.777	$13\frac{1}{2}$	8.148	$8\frac{1}{4}$	5.277	$5\frac{1}{4}$	30
35	14.900	15	8.959	9	5.873	$5\frac{3}{4}$	35
40	16.190	$16\frac{1}{4}$	9.926	9	6.610	$6\frac{1}{2}$	40
45	17.470	$17\frac{1}{2}$	10.896	10	7.352	$7\frac{1}{4}$	45
50	19.630	19	12.131	$12\frac{1}{4}$	8.340	$8\frac{1}{4}$	50
55	20.925	21	13.700	$13\frac{3}{4}$	9.653	$9\frac{3}{4}$	55
60	22.842	$22\frac{3}{4}$	15.337	$15\frac{1}{4}$	11.060	11	60
65	24.416	$24\frac{1}{2}$	16.693	$16\frac{3}{4}$	12.235	$12\frac{1}{4}$	65
70	26.210	$26\frac{1}{4}$	18.291	$18\frac{1}{4}$	13.664	$13\frac{3}{4}$	70
75	27.821	$27\frac{3}{4}$	19.761	$19\frac{3}{4}$	15.011	15	75
80	28.968	29	20.817	$20\frac{3}{4}$	15.985	16	80
85	30.104	30	21.885	22	16.991	17	85
90	30.834	$20\frac{3}{4}$	22.584	$22\frac{1}{2}$	17.661	$17\frac{3}{4}$	90
95	30.576	$30\frac{1}{2}$	22.326	$22\frac{1}{4}$	17.404	$17\frac{1}{2}$	95

\* EXAMPLE.—A reversionary estate in fee or perpetuity after the life of a person aged 30 years, at 3 per cent., is worth in present money (according to the Carlisle rate of mortality) 13.777, or  $13\frac{3}{4}$  years purchase; at 4 per cent. 8.148, or  $8\frac{1}{4}$  years purchase; at 5 per cent. 5.277, or  $5\frac{1}{4}$  years purchase.

TABLE IV.—(Continued.)

Showing the present Value of a *Reversionary* Estate in Fee after the Life of a Person of given Age, at the several Rates of 3, 4, 5, 6, 7, and 8 per Cent. Interest (Carlisle Table).

Age in Possession.	Years Purchase. 6 per Cent.		Years Purchase. 7 per Cent.		Years Purchase. 8 per Cent.		Age in Possession.
5	2·342	$2\frac{1}{4}$	1·712	$1\frac{3}{4}$	1·316	$1\frac{1}{4}$	5
10	2·219	$2\frac{1}{4}$	1·569	$1\frac{1}{2}$	1·166	$1\frac{1}{4}$	10
15	2·541	$2\frac{1}{2}$	1·813	$1\frac{3}{4}$	1·356	$1\frac{1}{4}$	15
20	2·832	$2\frac{3}{4}$	2·027	2	1·515	$1\frac{1}{2}$	20
25	3·211	$3\frac{1}{4}$	2·314	$2\frac{1}{4}$	1·738	$1\frac{3}{4}$	25
*30	3·647	$3\frac{3}{4}$	2·650	$2\frac{3}{4}$	2·012	2	30
35	4·094	4	2·991	3	2·265	$2\frac{1}{4}$	35
40	4·665	$4\frac{3}{4}$	3·441	$3\frac{1}{2}$	2·625	$2\frac{1}{2}$	40
45	5·239	$5\frac{1}{4}$	3·889	4	2·980	3	45
50	6·036	6	4·537	$4\frac{1}{2}$	3·513	$3\frac{1}{2}$	50
55	7·143	$7\frac{1}{4}$	5·479	$5\frac{1}{2}$	4·321	$4\frac{1}{4}$	55
60	8·363	$8\frac{1}{4}$	6·543	$6\frac{1}{2}$	5·255	$5\frac{1}{4}$	60
65	9·386	$9\frac{1}{4}$	7·439	$7\frac{1}{2}$	6·043	6	65
70	10·669	$10\frac{3}{4}$	8·596	$8\frac{1}{2}$	7·090	7	70
75	11·907	12	9·737	$9\frac{3}{4}$	8·145	$8\frac{1}{4}$	75
80	12·809	$12\frac{3}{4}$	10·573	$10\frac{1}{2}$	8·923	9	80
85	13·758	$13\frac{3}{4}$	11·471	$11\frac{1}{2}$	9·773	$9\frac{3}{4}$	85
90	14·401	$14\frac{1}{2}$	12·088	12	10·367	$10\frac{1}{4}$	90
95	14·145	$14\frac{1}{4}$	11·835	$11\frac{3}{4}$	10·117	10	95

\* EXAMPLE.—A reversionary estate in fee or perpetuity, after the life of a person aged 30 years, at 6 per cent., is worth in present money (according to the Carlisle rate of mortality), 3·647, or  $3\frac{3}{4}$  years purchase; at 7 per cent. 2·650, or  $2\frac{3}{4}$  years purchase; at 8 per cent. 2·012, or 2 years purchase.

TABLE V.

Acreege, Population, and Annual Value of Real Property, in each County of England and Wales, assessed to Income Tax (Schedule A) in the Year ending April 5, 1862.

ENGLAND.  Counties.	Acreege.	Population.		Gross Annual Value of Real Property, including Railways and Canals, assessed to Income Tax under Schedule A, in the Year ending April 5.	
		1851.	1861.	1862.	1857.
				£	£
Bedfordshire .....	295,582	124,478	135,287	596,016	517,621
Berkshire .....	451,210	170,065	176,256	841,686	776,859
Buckingham .....	466,932	163,723	167,993	765,516	667,410
Cambridge .....	525,182	183,405	176,016	1,140,029	1,026,370
Chester .....	707,078	455,725	505,428	2,000,300	1,982,439
Cornwall .....	873,600	355,558	369,390	1,346,752	1,135,462
Cumberland .....	1,001,273	195,492	205,276	990,835	882,870
Derby .....	658,803	296,084	339,327	2,671,124	2,065,686
Devon .....	1,657,180	567,098	584,373	2,137,213	1,896,377
Dorset .....	632,025	184,207	188,789	840,371	863,715
Durham .....	622,476	390,997	508,666	2,135,246	1,501,998
Essex .....	1,060,549	369,318	404,851	2,258,150	1,915,551
Gloucester .....	805,102	458,805	485,770	1,627,777	1,497,372
Hereford .....	534,823	115,489	123,712	811,659	731,446
Hertford .....	391,141	167,298	173,280	974,606	856,278
Huntingdon .....	229,544	64,183	64,250	407,840	375,187
Kent .....	1,039,419	615,766	733,887	2,802,222	2,402,289
Lancaster .....	1,219,221	2,031,236	2,429,440	4,803,798	3,929,833
Leicester .....	514,164	230,308	237,412	1,258,717	1,142,301
Lincoln .....	1,775,457	407,222	412,246	3,048,272	2,818,188
Middlesex .....	180,136	1,886,576	2,206,485	2,138,295	1,616,405
Monmouth .....	368,399	157,418	174,633	675,654	652,210
Norfolk .....	1,354,301	442,714	434,798	2,305,428	2,104,757
Northampton .....	630,358	212,380	227,704	1,286,403	1,152,713
Northumbria .....	1,249,299	303,568	343,025	1,337,083	1,112,664
Nottingham .....	526,076	270,427	293,867	815,938	737,695
Oxford .....	472,717	170,439	170,944	818,910	740,022
Rutland .....	95,805	22,983	21,861	181,456	162,697
Shropshire .....	826,055	229,341	240,959	1,352,123	1,242,618
Somersetshire .....	1,047,220	443,916	444,873	2,314,989	2,068,784
Southampton .....	1,070,216	405,370	481,815	1,490,785	1,299,744
Staffordshire .....	728,468	608,716	746,943	2,293,254	2,036,104
Suffolk .....	947,681	337,215	337,070	1,685,353	1,562,550
Surrey .....	478,792	643,082	831,093	1,800,633	1,517,245
Sussex .....	936,911	336,844	363,735	1,051,368	931,363
Warwickshire .....	563,946	475,013	561,855	1,414,499	1,299,013
Westmoreland .....	485,432	58,287	60,817	348,502	304,724
Wiltshire .....	865,092	254,221	249,311	1,096,678	901,449
Worcestershire .....	472,165	276,926	307,397	1,131,142	1,117,176
Yorkshire, E. Riding .....	768,419	220,983	240,227	1,286,774	1,036,273
"    W. Riding .....	1,709,307	1,325,495	1,507,796	3,264,820	3,380,860
"    N. Riding .....	1,350,121	216,214	245,154	1,487,566	1,269,416
Total of England .....	32,590,397	16,921,888	18,954,444	65,736,382	57,231,234

clvi ACREAGE, POPULATION, AND VALUE OF REAL PROPERTY.

TABLE V.—(Continued.)

Acreage, Population, and Annual Value of Real Property, in each County in England and Wales, assessed to Income Tax (Schedule A), in the Year ending April 5, 1862.

WALES.  Counties.	Average.	Population.		Gross Annual Value of Real Property, including Railways and Canals, assessed to Income Tax, under Schedule A, in the Year ending April 5.	
		1851.	1861.	1862.	1857.
				£	£
Anglesea .....	193,453	57,327	54,609	172,156	156,086
Brecknockshire .....	460,158	61,474	61,627	251,026	240,657
Cardiganshire .....	443,387	70,796	72,245	215,781	188,521
Carmarthenshire .....	606,331	110,632	111,796	374,721	351,806
Carnarvonshire .....	370,273	87,870	95,694	359,224	283,675
Denbighshire .....	386,052	92,583	100,778	486,779	473,355
Flintshire .....	184,905	68,156	69,737	331,807	255,569
Glamorganshire .....	547,494	231,849	317,752	655,351	503,375
Merionethshire .....	385,291	38,843	38,963	209,265	163,027
Montgomeryshire .....	483,323	67,335	66,919	300,321	275,307
Pembrokeshire .....	401,691	94,140	96,278	323,018	302,094
Radnorshire .....	272,128	24,716	25,382	119,675	109,354
Total of Wales .....	4,734,486	1,005,721	1,111,780	3,799,124	3,302,826
„ England & Wales	37,324,883	17,927,609	20,066,224	69,535,506	60,534,060
SCOTLAND .....	19,639,377	2,888,742	3,062,294	9,274,064	8,018,005

Gross Annual Value of Real Property, including Railways and Canals, assessed to Income Tax under Schedule A, and including both Boroughs and Counties.

	Borough.		Counties.		Totals of Boroughs and Counties.	
	1862.	1857.	1862.	1857.	1862.	1857.
	£	£	£	£	£	£
Eng. & Wales	50,534,457	42,962,193	69,535,506	60,534,060	120,069,963	103,496,253
Scotland .....	5,854,474	4,569,744	9,274,064	8,013,005	15,128,538	12,582,749
Ireland .....	2,443,195	2,089,191	10,957,351	9,826,095	13,400,546	11,915,246
United Kingdom .....	58,832,126	49,621,128	89,766,921	78,373,160	148,599,047	127,994,288

Acres of Land in Great Britain, and Acres of Land returned as in the Occupation of the Farmer by whom it is Farmed.

	Number of Farms.	Acres of Territory.	Estimated Number of Acres under Culture as returned by Farmers.	Number of Acres Uncultivated or unaccounted for.
Great Britain .. ..	285,936	57,624,377	29,213,312	28,411,065
England .. .. .	225,318	37,324,915	24,905,758	12,419,157
Scotland .. .. .	56,650	20,047,462	4,188,578	15,858,884
Islands in the British Seas .. .. .	3,968	252,000	118,976	133,024

The following Table represents the average size of Farms in Great Britain :—

Acres.	NUMBER OF FARMS.			
	Great Britain.	England and Wales.	Scotland.	Islands.
Total .. .. .	283,378	223,271	56,150	3,957
Under .. .. 100	190,573	142,358	44,469	3,746
Between 100 and 200	52,912	45,752	7,009	151
200 „ 300	20,603	18,401	2,166	36
300 „ 400	9,031	8,061	961	9
400 „ 500	4,063	3,585	471	7
500 „ 600	2,248	1,971	272	5
600 „ 1000	2,816	2,372	442	2
1000 and upwards	1,132	771	360	1

The size of 2558 farms in Great Britain—of 2047 in England and Wales, of 500 in Scotland, and 11 farms in the Islands of the British Seas,—was not stated.

In the same year, the proportional number of Farm-holdings of various sizes was given. Out of every thousand Farms there were :—

Acres.	Great Britain.	England and Wales.	Scotland.	Islands.
Under 100	672·50	637·60	791·97	946·68
100	186·72	204·92	124·83	38·16
200	72·71	82·42	38·58	9·10
300	31·87	36·10	17·11	2·27
400	14·34	16·06	8·39	1·77
600	9·94	10·62	7·87	·51
1000 and upwards ...	3·99	3·45	6·41	·25



clviii NUMBER OF PERSONS ENGAGED IN AGRICULTURE.

Number of Persons engaged in Agriculture in England and Wales, enumerated at each of the Censuses of 1851 and 1861.

Occupations.	Persons.		Males.		Females.	
	1851.	1861.	1851.	1861.	1851.	1861.
Total of Agricultural Order	2,011,447	1,924,110	1,559,762	1,545,667	451,685	378,443
Land Proprietor.....	30,315	30,766	17,047	15,131	13,268	15,635
Farmer Grazier .....	249,431	249,735	226,515	226,957	22,916	22,778
Farmer Grazier's Wife ...	164,618	163,765	...	...	164,618	163,765
Farmer's Son, Grandson, Brother, &c. ....	111,704	92,321	111,704	92,321	...	...
Farmer's Daughter, Sister, Niece, &c. ....	105,147	83,830	...	...	105,147	83,830
Farm-Bailiff .....	10,561	15,698	10,561	15,698	...	...
Agricultural Labourer (Out- door) .....	952,997	958,265	908,678	914,301	44,319	43,964
Shepherd (Out-door) .....	12,517	25,559	12,517	25,559	...	...
Farm-Servant (In-door) ...	288,272	204,962	189,116	158,401	99,156	46,561
Land Surveyor, Land Agent	3,064	4,702	3,064	4,702	...	...
Agricultural Student.....	104	490	104	490	...	...
Hop Grower .....	30	33	30	33	...	...
Willow Rod Grower or Dealer .....	60	35	59	35	1	...
Teazle Grower, Merchant .	85	81	85	81	...	...
Agricultural Implement Proprietor .....	55	236	50	236	5	...
Agricultural Engine and Machine Worker .....	...	1,205	...	1,205	...	...
Land-Drainage Service ...	11	1,761	11	1,761	...	...

The remainder of the list of occupations is not so closely connected with agriculture.

Occupations.	Persons.		Males.		Females.	
	1851.	1861.	1851.	1861.	1851.	1861.
Colonial Planter & Farmer	16	91	16	91	...	...
Others connected with Agriculture .....	128	117	116	73	12	44
Woodman and Wood Ga- therer .....	7,772	8,916	7,772	8,907	...	9
Others connected with Arboriculture .....	236	10	220	10	16	...
Gardener .....	71,805	78,533	69,685	76,760	2,120	1,773
Nurseryman .....	2,383	2,917	2,350	2,838	33	79
Watercress Grower .....	39	55	39	55	...	...
Others connected with Hor- ticulture .....	97	27	23	22	74	5

Number of Farmers and Graziers, Farm-Bailiffs, Farm-Servants (In-door), Agricultural Labourers, and Shepherds (Out-door), enumerated at the Censuses of 1851 and 1861 in England and Wales.

1851 .....	1,347,387
1861 .....	1,340,916

In Scotland the totals of the Agricultural class were—

1851 .....	388,203
1861 .....	378,609

# ANALYSES OF SOILS.

THE subjoined Analyses of soils and of vegetable and animal substances are selected from the works of some of the most eminent chemists in Europe :—

The object of presenting these Analyses to the reader is to confirm the views taken in the foregoing pages, by showing, first, the dependence of the existence of plants upon the mineral substances in the soil; secondly, the value of the various kinds of straw and hay merely, and indeed of all vegetable substances, as manure; thirdly, the different degrees in which their several mineral constituents are required by each particular crop; and lastly, the necessity of their presence in artificial manures, except those which the land is known to contain in inexhaustible quantity.

Both the salts and organic parts of animal substances are nearly the same as those of plants from which they are derived, except that the organic substances of the former contain less oxygen and a much greater quantity of nitrogen, to which latter circumstance is owing its much more powerful effect as a manure.

No. 1 is the analysis of a soil, called a loamy sand, in the environs of Brunswick, of remarkable sterility, upon which white clover would not grow.

No. 2 is the analysis of a very fertile alluvial soil from Honigpolder, to which no manure had ever been applied.

	No. 1.	No. 2.
	Parts in 100 of each.	
Silica with <i>coarse</i> silicious and	95·843	64·800 fine.
Alumina . . . . .	0·600	5·700
Protoxide and peroxide of iron	1·800	6·100 peroxide only.
Peroxide of manganese . . .	a trace	0·090
Lime in combination with silica	0·038	5·880 with other acids.

	No. 1. Parts in 100	No. 2. of each.
Magnesia in combination with silica	0·006	0·840
Potash and soda . . .	0·005	0·603
Phosphate of iron . . .	0·198	0·430 Phosphate of lime.
Sulphuric acid . . .	0·002	0·210 with lime.
Chlorine . . .	0·006	0·201 in common salt.
Humus soluble in alkalies .	1·000	2·540
Humus insoluble in alkalies .	0·502	5·600
Carbonic acid combined with lime	—	3·920
Nitrogenous matter . . .	—	1·582
Water . . . . .	—	1·504
	100·000	100·000

“The obvious cause of the poverty of the soil No. 1 is a deficiency of lime, magnesia, potash, and gypsum, for it was found that the fertility of the soil was much increased by manuring it with marl. The white clover, which formerly refused to grow upon this soil, now grew upon it with much luxuriance; the dryness of the soil could not have been the cause of its sterility, for the stiff nature of the subsoil on which it rested prevented a deficiency of moisture.”

These analyses of soils of such great difference in their productive power are placed alongside each other in order to show more conspicuously the cause of their so widely differing. Their mechanical structure would of course have considerable effect to the disadvantage of No. 1; but had they been the same in this respect, the superiority of No. 2 would have been almost equally great.

The fresh ashes of wheat contain, in 100 parts:—

Phosphate of potash . . .	36·51
Phosphate of soda . . .	32·13
Phosphate of lime . . .	3·35
Phosphate of magnesia . . .	19·61

Perphosphate of iron	.	.	3·04
Silica	.	.	·15
Coal and sand	.	.	4·99

FRESENIUS.

The ashes of rye contain, in 100 parts :—

Phosphate of potash	.	.	52·91
Phosphate of soda	.	.	9·29
Phosphate of lime	.	.	5·21
Phosphate of magnesia	.	.	26·91
Perphosphate of iron	.	.	1·88
Sulphate of potash and common salt			2·98
Silicate of potash	.	.	·34
Sand	.	.	·50

FRESENIUS.

The ashes of peas contain, in 100 parts :—

Phosphate of potash	.	.	52·78
Phosphate of soda	.	.	5·67
Phosphate of lime	.	.	10·77
Phosphate of magnesia	.	.	13·78
Perphosphate of iron	.	.	2·46
Sulphate of potash	.	.	9·09
Common salt	.	.	3·96

WILL.

The ashes of beans contain, in 100 parts :—

Phosphate of potash and soda	.		68·59
Phosphate of lime	.	.	9·35
Phosphate of magnesia	.	.	19·11
Sulphate of potash and common salt			1·84
Silicate of potash	.	.	1·11

BUCHNER.

The ashes of barley contain, in 100 parts :—

Potash	.	.	18·00
Phosphate of lime	.	.	9·20
Chloride of potassium	.	.	·25

Sulphate of potash . . . . .	1·5
Earthy phosphates . . . . .	32·5
Silica . . . . .	35·5
Metallic oxides . . . . .	·25
Loss . . . . .	2·80
SAUSSURE.	

The ashes of oats, 100 parts :—

Potash . . . . .	6·00
Soda . . . . .	5·00
Lime . . . . .	3·00
Magnesia . . . . .	2·50
Alumina . . . . .	0·50
Silica . . . . .	76·50
Sulphuric acid . . . . .	1·50
Phosphoric acid . . . . .	3·00
Chlorine . . . . .	·50
JOHNSTON.	

The ashes of wheat straw, 100 parts :—

Potash . . . . .	12·5
Phosphate of lime . . . . .	5·0
Chloride of potassium . . . . .	3·0
Sulphate of potash . . . . .	2·0
Earthy phosphates . . . . .	6·2
Earthy carbonates . . . . .	1·0
Silica . . . . .	61·5
Metallic oxides . . . . .	1·0
Loss . . . . .	7·8
SAUSSURE.	

The ashes of barley straw, 100 parts :—

Potash . . . . .	16·0
Chloride of potassium . . . . .	·5
Sulphate of soda . . . . .	3·5
Earthy phosphates . . . . .	7·75
Earthy carbonates . . . . .	12·5
Silica . . . . .	35·5



Metallic oxides . . . . .	·5
Loss . . . . .	2·25
	SAUSSURE.

The ashes of bean straw, 100 parts :—

Carbonate of potash . . . . .	3·32
Carbonate of soda . . . . .	6·06
Sulphate of potash . . . . .	32·4
Common salt . . . . .	0·28
Carbonate of lime . . . . .	39·50
Magnesia . . . . .	1·92
Phosphate of lime . . . . .	6·43
Phosphate of magnesia . . . . .	6·66
Phosphate of iron and alum . . . . .	3·49
Silica . . . . .	7·97

HERTWIG.

The ashes of pea straw, 100 parts :—

Carbonate of potash . . . . .	4·16
Carbonate of soda . . . . .	8·27
Sulphate of potash . . . . .	10·75
Common salt . . . . .	4·63
Carbonate of lime . . . . .	47·81
Magnesia . . . . .	4·05
Phosphate of lime . . . . .	5·15
Phosphate of Magnesia . . . . .	4·37
Phosphate of iron and alum . . . . .	2·10
Silica . . . . .	7·81

The ashes of good meadow hay, 100 parts :—

Silica . . . . .	60·1
Phosphate of lime . . . . .	16·1
Phosphate of iron . . . . .	5·0
Lime . . . . .	2·7
Magnesia . . . . .	8·6
Gypsum . . . . .	1·2
Sulphate of potash . . . . .	2·2
Chloride of potassium . . . . .	1·3
Carbonate of soda . . . . .	2·0
Loss . . . . .	·8

The ashes of clover and sainfoin, 100 parts of each :—

	Clover.	Sainfoin.
Silica . . . . .	5·438	2·79
Sulphate of potash . . . . .	3·080	3·87
Chloride of sodium . . . . .	1·670	2·37
Carbonate of potash . . . . .	12·728	9·93
Carbonate of soda . . . . .	13·528	17·16
Carbonate of lime . . . . .	38·216	32·55
Magnesia . . . . .	4·160	9·11
Phosphate of iron . . . . .	1·240	0·64
Phosphate of lime . . . . .	11·970	16·37
Phosphate of magnesia . . . . .	6·790	3·98
Carbonaceous matter . . . . .	0·160	0·36

LIEBIG.

The ashes of the bran of wheat, 100 parts :—

Potash . . . . .	14·0
Phosphate of lime . . . . .	7·0
Chloride of potassium . . . . .	·16
Earthy phosphates . . . . .	46·5
Silica . . . . .	·5
Metallic oxides . . . . .	·25
Loss . . . . .	8·59

SAUSSURE.

Analyses of several kinds of farm produce, 100 parts of each, extremely dry :—

	Carbon.	Hydrogen.	Oxygen.	Nitrogen.	Ashes.
Wheat - - - - -	46·1	5·8	43·4	2·3	2·4
Rye - - - - -	46·2	5·6	42·2	1·7	2·3
Oats - - - - -	50·7	6·4	36·7	2·2	4·0
Wheat straw - - - - -	48·4	5·3	38·9	0·4	7·0
Rye straw - - - - -	49·9	5·6	40·6	0·3	3·6
Oat straw - - - - -	50·1	5·4	39·0	0·4	5·1
Potatoes - - - - -	44·0	5·8	44·7	1·5	4·0
Beet - - - - -	42·8	5·8	43·4	1·7	6·3
Turnips - - - - -	42·9	5·5	42·3	1·7	7·6
Yellow peas - - - - -	46·5	6·2	40·0	4·2	3·1
Pea straw - - - - -	45·8	5·0	35·6	2·3	11·3
Red clover stalk - - - - -	47·4	5·0	37·8	2·1	7·7

Analyses of dry beef and ox blood, by which their constituents appear to be the same:—

			Beef.	Ox blood.
Carbon	-	-	51·83	51·95
Hydrogen	-	-	7·57	7·17
Nitrogen	-	-	15·01	15·07
Oxygen	-	-	21·37	21·39
Ashes	-	-	4·23	4·42

PLAYFAIR.

The above elements exist in flesh and blood as fibrine and albumen, both of which always contain sulphur and phosphorus. All animal substances, except bones, so very nearly resemble beef and blood in composition, that it is quite needless to give their separate analyses. Their ashes consist principally of phosphates, with sulphates, common salt, and iron, to which, and the great quantity of nitrogen they contain, they owe their great power as manures. Horn, wool, hair, and hoofs differ from dry flesh and blood chiefly in their greater consolidation, by which their decomposition is retarded.

Upon paying particular attention to the above analyses of vegetable substances, it will be remarked that the several salts not only vary in quantity in the ashes of different plants, but also that the bases and acids appear under different states of combination than that in which they existed in the soil before they became the food of plants. The organism of plants, therefore, must have the power to effect these changes, that is, to separate the bases and acids, and even in some instances their elements, and to arrange or recombine them in forms suited to supply the mechanism, and to serve the functions of vegetable and animal existence. Some change is effected by the operation of analysis, as by burning the vegetable or organic acids, which in the plant were combined with the alkalies and alkaline earths, are destroyed, and the latter are found in the ashes as carbonates.

## LEGAL MEMORANDA.

HUMORISTS tell us there is no act of our lives which can be performed without breaking through some one of the many meshes of the law by which our rights are so carefully guarded; and those learned in the law, when they do give advice without the usual fee, and in the confidence of friendship, generally say, "Pay, pay anything rather than go to law;" while those having experience in the courts of Themis have a wholesome dread of their pitfalls. There are a few exceptions, however, to this fear of the law's uncertainties; and we hear of those to whom a lawsuit is an agreeable relaxation, a gentle excitement. One of this class, when remonstrated with, retorted, that while one friend kept dogs, and another horses, he, as he had a right to do, kept a lawyer, and no one had a right to dispute his taste. We cannot pretend, in these few pages, to lay down even the principles of law, not to speak of its contrary exposition in different courts; but there are a few acts of legal import which all men—and women too—must perform, and to these acts we may be useful in giving a right direction. There is a house to be leased or purchased, servants to be engaged, a will to be made, or property settled, in all families; and much of the welfare of its members depends on these things being done in proper legal form.

### PURCHASING A HOUSE.

Few men will venture to purchase a freehold, or even a leasehold property by private contract, without making themselves acquainted with the locality, and employing a solicitor to examine the title; but many do walk into an auction-room, and bid for a property upon the representations of the auctioneer. Few persons trouble themselves about the conditions of sale, which are frequently drawn up with much caution in favour of the vendor, and in many cases with an evident intention to relieve him of his proper burthen of the expenses of making out his own title. The conditions,

whatever they are, will bind the purchaser; for by one of the legal fictions of which we have so many, the auctioneer, who is in reality the agent for the vendor, becomes also the agent for the buyer, and by putting down the names of bidders and the biddings, he binds him to whom the lot is knocked down to the sale and the conditions; the falling of the auctioneer's hammer is the acceptance of the offer, which completes the agreement to purchase. In any such transaction you can only look at the written or printed particulars; any verbal statement of the auctioneer made at the time of the sale cannot contradict them, and they are supplemented by the agreement which the auctioneer calls on the purchaser to sign after the sale. You should sign no such contract without having a duplicate of it signed by the auctioneer, and delivered to you. It is, perhaps, unnecessary to add, that no trustee or assignee can purchase property for himself included in the trust, even at auction; nor is it safe to pay the purchase-money to an agent of the vendor, unless he give a written authority to the agent to receive it, besides handing over the requisite deeds and receipts.

The only circumstances strong enough to vitiate a purchase, which has been reduced to a written contract, is proof of fraudulent representation as to an encumbrance of which the buyer was ignorant, or a defect in title; but every circumstance which the purchaser might have learned by careful investigation, the law presumes he did know. Thus, in buying a leasehold estate or house, all the covenants of the original lease are presumed to be known. "It is not unusual," says Lord St. Leonards, "to stipulate, in conditions of sale of leasehold property, that the production of a receipt for the last year's rent shall be accepted as proof that all the lessor's covenants were performed up to that period. Never bid for one clogged with such a condition. There are some acts against which no relief can be obtained except by a suit, and then only to cover one breach of, or default in the performance of any particular covenant or clause; for example, the tenant's right to insure or his



insuring in an office or in names not authorized in the lease. And you should not rely upon the mere fact of the insurance being correct at the time of sale: there may have been a prior breach of covenant, and the landlord may not have waived his right of entry for the forfeiture." And where any doubt of this kind exists, the landlord should be appealed to.

Interest on a purchase is due from the day fixed upon for completing; where it cannot be completed, the loss rests with the party with whom the delay rests; but it appears, when the delay rests with the seller, and the money is lying idle, notice of that is to be given to the seller to make him liable to the loss of interest. If the purchaser make any profit whatever from his unpaid purchase-money, he cannot claim exemption from the payment of interest, although the delay in completing may be through the fault of the vendor. In law the property belongs to the purchaser from the date of the contract; he is entitled to any benefit and must bear any loss. The seller may suffer the insurance to drop without giving notice, and should a fire take place the loss falls on the buyer. In agreeing to buy a house, therefore, provide at the same time for its insurance. Common fixtures pass with the house, where nothing is said about them.

There are some well-recognized laws, of what may be called good-neighbourhood, which affect all properties. If you purchase a field or house, the seller retaining another field between yours and the highway, he must of necessity grant you a right of way. Where the owner of more than one house sells one of them, the purchaser is entitled to benefit by all drains leading from his house into other drains, and will be subject to all necessary drains for the adjoining houses, although there is no express reservation as to drains. Thus, if his happens to be a leading drain, other necessary drains may be opened into it. In purchasing land for building on, you should expressly reserve a right to make an opening into any sewer or watercourse on the vendor's land for drainage purposes.

## CONSTRUCTIONS.

Among the cautions which purchasers of houses or land should keep in view, is a not inconsiderable array of *constructive* notices, which are equally binding with actual ones. Notice to your attorney or agent is notice to you; and when the same solicitor is employed by both parties, and he is aware of an encumbrance of which you are ignorant, you are bound by it; even where the vendor is guilty of a fraud to which your agent is privy, you are responsible, and cannot be released from the consequences, although you would be able to substantiate a claim against him in either of the cases mentioned.

## THE RELATIONS OF LANDLORD AND TENANT

Are most important to both parties, and each should clearly understand his position. The proprietor of a house, or house and land, agrees to let it either to a tenant-at-will, on a yearly tenancy, or by under-lease. A tenancy-at-will may be created by parole or by agreement; and as the tenant may be turned out when his landlord pleases, so he may leave when he himself thinks proper; but this kind of tenancy is extremely inconvenient to both parties, and is seldom created. Where an annual rent is attached to the tenancy, in construction of law, a lease or agreement without limitation to any certain period is a lease from year to year, and both landlord and tenant are entitled to notice before the tenancy can be determined by the other. This notice must be given at least six months before the expiration of the current year of the tenancy, and it can only terminate at the end of any whole year from the time at which it began; so that the tenant entering into possession at Midsummer, the notice must be given to or by him so as to terminate at the same term. When once he is in possession, he has a right to remain for a whole year; and if no notice be given at the end of the first half-year of his tenancy, he will have to remain two years, and so on for any number of years.

In all agreements it is safer for either landlord or tenant to stipulate that the tenancy may be determined by three or six months' notice as the case may be, to expire on either of the quarterly or half-yearly days appointed for payment of the rent.

#### TENANCY BY SUFFERANCE.

This is a tenancy, not very uncommon, arising out of the unwillingness of either party to take the initiative in a more decided course at the expiry of a lease or agreement. The tenant remains in possession, and continues to pay rent as before, and becomes, from sufferance, a tenant from year to year, which can only be terminated by one party or the other giving the necessary six calendar months' notice to quit at the term corresponding with the commencement of the original tenancy. This tenancy at sufferance applies also to an under-tenant, who remains in possession and pays rent to the reversioner or head landlord. A six lunar months' notice will be insufficient for this tenancy. A notice was given (in *Right v. Darby*, I.T.R. 159) on the 17th June, 1840, to quit a house held by plaintiff as tenant from year to year, requiring him "to quit the premises on the 11th October following, or such other day as his said tenancy might expire." The tenancy had commenced on the 11th October in a former year, but it was held that this was not a good notice for the year ending October 11, 1841. A tenant from year to year gave his landlord notice to quit, ending the tenancy at a time within the half-year; the landlord acquiesced at first, but afterwards refused to accept the notice. The tenant quitted the premises; the landlord entered, and even made some repairs, but it was afterwards held that the tenancy was not determined. A notice to quit must be such as the tenant may safely act on at the time of receiving it, therefore it can only be given by an agent properly authorized at the time, and cannot be made good by the landlord adopting it afterwards. An unqualified notice, given by a landlord at the proper time, should conclude with "On failure whereof I shall require you to pay me double rent

for so long as you retain possession." The landlord will be then enabled to recover by action, but not by distress, such double rent; and if a tenant retain possession after the time limited by his notice to quit, he is for his default liable to pay double rent, or he may be treated as a trespasser.

## LEASES.

A lease is an instrument in writing, by which one person grants to another the occupation and use of lands or tenements for a term of years for a consideration, the lessor granting the lease, and the lessee accepting it with all its conditions. A lessor may grant the lease for any term less than his own interest—for instance, one day—otherwise the grant will operate as an assignment, and as the rent is incident to the reversion, and the grantor would in that case have no reversion, he could not at law recover his rent. A tenant for life in an estate can only grant a lease for his own life. A tenant for life, having power to grant a lease, should grant it only in the terms of the power, otherwise the lease is void, and his estate may be made to pay heavy penalties under the covenant, usually the only one onerous on the lessor, for quiet enjoyment. The proprietor of a freehold—that is, of the possession in perpetuity of lands or tenements—may grant a lease for any number of years, for instance, ten thousand. If it be for not more than three years it may be either verbal or in writing. If it be in writing, it will require to be stamped the same as a lease, although it may be only in the nature of an agreement so long as the intention of the parties is clearly expressed, and the covenants definite, and well understood by each party, the agreement is complete, and the law satisfied. In the case of settled estates, where no power or an insufficient power is contained in a will or settlement, the Court of Chancery is empowered to authorize leases under the 19 & 20 Vict. c. 120, and 21 & 22 Vict. 77, as follows:—21 years for agriculture or occupation, 40 years for water-power, 99 years for building-leases, 60 years for repairing-leases.



Leases are frequently burdened with a covenant not to underlet without the consent of the landlord: this is a covenant sometimes very onerous, and to be avoided, where it is possible, by a prudent lessee. An underletting to mere lodgers or inmates, would not, however, work a forfeiture of the lease.

A lease for any term beyond three years, whether an actual lease or an agreement for one, must be in the form of a deed; that is, it must be "under seal;" and all assignments and surrenders of leases must be in the same form, or they are *void at law*. Thus, an agreement made by letter, or by a memorandum of agreement, which would be binding in most cases, would be valueless when it was for a lease, unless under hand and seal. The last statutes, 8 & 9 Vict. c. 106, under which these provisions became necessary, has led to serious difficulties. "The judges," says Lord St. Leonards, "feel the difficulty of holding a lease in writing, but not by deed, to be altogether void, and consequently decided, that although such a lease is void under the statute, yet it so far regulates the holding, that it creates a tenancy from year to year, terminable by half a year's notice; and if the tenure endure for the term attempted to be created by the void lease, the tenant may be evicted at the end of the term without any notice to quit." An agreement for a lease not by deed has been construed to be a lease for a term of years, and consequently void under the statute; "and yet," says Lord St. Leonards, "a court of equity has held that it may be specifically enforced as an agreement upon the terms stated." The law on this point is one of glorious uncertainty; in making any such agreement, therefore, we should be careful to express that it is an agreement, and not a lease; and that it is under seal. Neither an agreement nor a deed need be witnessed. If a deed be in the possession of the person who, in the common course of business, would be entitled to hold it, the law will presume it had been sealed and delivered by the other, until the contrary had been shown.



## AGREEMENTS.

It is usual, where the lease is a repairing one, to agree for a lease to be granted on completion of repairs according to specification, or otherwise. This agreement should contain the names and designation of the parties, a description of the property, and the term of the intended lease, and all the covenants which are to be inserted, as no verbal evidence can be given to controvert a written agreement. It should also declare that the instrument is an agreement for a lease, and not the lease itself. The points to be settled in such an agreement are, the rent, term, and especially covenants for insuring and rebuilding in the event of a fire; and if it is intended that the lessor's consent is to be obtained before assigning or underleasing, a covenant to that effect is required in the agreement. In building-leases, usually granted for 99 years, the tenant is to insure the property; and even where the agreement is silent on that point, the law decides it so. It is otherwise with ordinary tenements, when the tenant pays a full, or what the law terms rack-rent; the landlord is then to insure, unless it is otherwise arranged by the agreement or lease.

It is important for lessee, and lessor also, that the latter does not exceed his powers. A lease granted by a tenant for life before he is properly in possession, is void in law; for, although a court of equity will, "by force of its own jurisdiction, support a *bonâ fide* lease, granted under a power which is merely erroneous in form or ceremonies," and the 12 & 13 Vict. c. 26, and 13 & 14 Vict. c. 19, compel a new lease to be granted with the necessary variations, yet the lessor has no power to compel the intended lessee to accept such a lease, except when the person in remainder is competent and willing to confirm the original lease without variations, yet all these difficulties involve both delay, cost, and anxieties.

In husbandry leases, a covenant to cultivate the land in a husbandlike manner, and according to the custom of the dis-

trict, is always implied; but it is more usual to prescribe the course of tillage which is to be pursued. In the case of houses for occupation, the tenant would have to keep the house in a tenantable state of repair during the term, and deliver it up in like condition. This is not the case with the tenant at will, or from year to year, where the landlord has to keep the house in tenantable repair, and the tenant is only liable for waste beyond reasonable wear and tear.

#### INSURANCE.

Every lease, or agreement for a lease, should covenant not only who is to pay insurance, but how the tenement is to be rebuilt in the event of a fire; for if the house were burnt down, and no provision made for insurance, the tenant, supposing there was the ordinary covenant to repair in the lease, would not only have to rebuild, but to pay rent while it was being, or until it should be rebuilt. More than this, supposing the landlord had taken the precaution of insuring, he is not compelled to lay out the money recovered in rebuilding the premises, unless the lease contains a provision to that effect. Sir John Leach lays it down, that "the tenant's situation could not be changed by a precaution, on the part of the landlord, with which he had nothing to do." This decision Lord Campbell confirmed in a more recent case, in which the action was brought against a lessee who was not bound to repair, and neither he nor the landlord bound to insure; admitting an equitable defence, the court affirmed Sir John Leach's decision, holding that the tenant was bound to pay the rent, and could not require the landlord to lay out the insurance money in rebuilding. This is opposed to the opinion of Lord St. Leonards, who admits, however, that the decision of the court must overrule his *dictum*. Such being the state of the law, it is very important that insurance should be provided for, and that the payment of rent should be made to depend upon rebuilding the house in the event of a fire. Care must be taken, however, that this is made a

covenant of the lease, as well as a clause in the agreement, otherwise the tenant must rebuild the house.

The law declares that a tenant is not bound to repair damages by tempest, lightning, or other natural casualty, unless there is a special covenant to that effect in the lease; but if there is a general covenant to repair, the repair will fall upon the tenant, unless the exception or exceptions be made in the case. It is, therefore, important to have this settled in the insurance clause.

Lord St. Leonards asserts that "his policies against fire are not so framed as to render the company *legally* liable." Generally the property is inaccurately described with reference to the conditions under which you insure. They are framed by companies who, although they may intend to pay what they deem a just claim without taking advantage of any technical objection, yet desire to reserve a defence only against what they believe to be a fraud, although they may not be able to prove it. "But," says his lordship, "do not rely upon the moral feelings of the directors. Ascertain that your house falls strictly within the conditions. Even having the surveyor of the company to look over your house before the insurance will not save you, unless your policy is correct." This is true; but probably his lordship's legal jealousy overshoots the mark here. Assurance companies only require an honest statement of the facts, and that no concealment is practised with their surveyor; and the case of his own, which he quotes, in which a glass door led into a conservatory, rendering it, according to the view of the company, "hazardous," and consequently voiding the policy, when the fire did occur, the company paid, rather than try the question; but even after the fire they demurred, when called upon, to make the description correct and indorse on the policy the fact that the drawing room opened through a glass door into conservatories. One of two inferences is obvious here; either his lordship has overcoloured the statement, or the company could not be the respectable one represented. The practice with all reputable offices is to

survey the premises before insurance, and to describe them as they appear; but no concealment of stoves, or other dangerous accessories or inflammable goods, should be practised. This certainty binds the office so long as no change takes place; but the addition of any stove, opening, or door through a party wall, the introduction of gunpowder, saltpetre, or other inflammable articles into the premises without notice, very properly "voids the policy." The usual course is to give notice of all alterations, and have them indorsed on the policy, as additions to the description of the property: there is little fear, where this is honestly done, that any company would adopt the sharp practice hinted at in Lord St. Leonards' excellent handy-book. At the foot of every policy, there is rather a formidable set of conditions which are very seldom read by the insurer. Our advice is to read every word, in order that precaution may be taken to have the policy framed to meet the peculiar circumstances alluded to in the conditions.

#### BREAKS IN THE LEASE.

Where a lease or an agreement is for seven, fourteen, or twenty-one years, the option to determine it at the end of the first or second term is in the tenant, unless it is distinctly agreed that the option shall be mutual. In either case give the notice of the intention to determine it rather before than at the specified time for giving it provided for by the lease.

#### NOXIOUS TRADES.

A clause is usually introduced prohibiting the carrying on of any trade in some houses, and of noxious or particular trades in others. This clause should be jealously inspected, otherwise great annoyance may be produced. It has been held that a general clause of this description prohibited a tenant from keeping a school, for which he had taken it, although a lunatic asylum and public-house have been found

admissible; the keeping an asylum not being deemed a trade, which is defined as "conducted by buying and selling." It is better to have the trades, or class of trades objected to, defined in the lease.

#### FIXTURES.

In houses held under lease, it has been the practice with landlords to lease the bare walls of the tenement only, leaving the lessee to put in the stoves, cupboards, and such other conveniences as he requires, at his own option. These, except under particular circumstances, are the property of the lessee, and may either be sold to an incoming tenant, or removed at the end of his term. The articles which may not be removed are subject to considerable doubt, and are a fruitful source of dispute. Mr. Commissioner Fonblanque has defined as tenants' property all goods and chattels; 2ndly, all articles "slightly connected one with another, and with the freehold, but capable of being separated without materially injuring the freehold;" 3rdly, articles fixed to the freehold by nails and screws, bolts or pegs, are also tenants' goods and chattels; but when sunk in the soil, or built on it, they are integral parts of the freehold, and cannot be removed. Thus, a greenhouse or conservatory attached to the house by the tenant is not removeable; but the furnace and hot-water pipes by which it is heated may be removed or sold to the incoming tenant. A brick flue does not come under the same category, but remains. Window-blinds, grates, stoves, coffee-mills, and, in a general sense, everything he has placed which can be removed without injury to the freehold, he may remove, if they are separated from the tenement during his term, and the place made good. It is not unusual to leave the fixtures in their place, with an undertaking from the landlord that, when again let, the incoming tenant shall pay for them, or permit their removal. In a recent case, however, a tenant having held over beyond his term and not removed his fixtures, the landlord let the



premises to a new tenant, who entered into possession, and would not allow the fixtures to be removed—it was held by the courts, on trial, that he was justified. A similar case occurred to the writer: he left his fixtures in the house, taking a letter from the landlord, undertaking that the incoming tenant should pay for them by valuation, or permit their removal. The house was let; the landlord died. His executors, on being applied to, pleaded ignorance, as did the tenant, and on being furnished with a copy of the letter, the executors told applicant that if he was aggrieved, he knew his remedy; namely, an action at law. He thought the first loss the least, and has not altered his opinion.

#### TAXES.

Land-tax, sewers-rate, and property-tax, are landlord's taxes; but by 30 Geo. II. c. 2, the occupier is required to pay all rates levied, and deduct from the rent such taxes as belong to the landlord. Many landlords now insert a covenant, stipulating that land-tax and sewers-rate are to be paid by the tenants, and not deducted; this does not apply to the property-tax. All other taxes and rates are payable by the occupier. The landlord is bound, under a penalty, to allow two years' property-tax but not more.

#### WATER-RATE,

Of course, is paid by the tenant. The water-companies, as well as gas-companies, have the power of cutting off the supply; and most of them have also the right of distraining, in the same manner as landlords have for rent.

#### NOTICE TO QUIT.

In the case of leasing for a term, no notice is necessary; the tenant quits, as a matter of course, at its termination; or if, by tacit consent, he remains paying rent as heretofore,

he becomes a tenant at sufferance, or from year to year. Half a year's notice now becomes necessary, as we have already seen, to terminate the tenancy, except a special arrangement be made to the contrary. Either of these notices may be given verbally if it can be proved that the notice was definite, and given at the right time; but it is more advisable to give it in writing. Form of notice is quite immaterial, provided it is definite and clear in its purport. If there be any doubt as to the time at which the tenancy commenced, and it be necessary for the notice to expire at a time corresponding to the commencement of the tenancy, the notice should be given by a landlord for the tenant to quit on the day on which it is supposed the tenancy will terminate, or on such other day as the current year, or other period of the tenancy may expire next, after six months, three months, or other period, as the case may be, from the service of the notice.

Tenancy for less than a year may be terminated according to the taking. Thus, when taken for three months, and so on from three months to three months, a three months' notice is required; when monthly, and so on from month to month, a month's notice; and when weekly, a week's notice. When taken for a definite time, as a month, a week, or a quarter, no notice is necessary on either side. If premises are taken by the year, with a provision for giving three months' notice, such notice must expire at the same time of the year at which the tenancy commenced, unless it be stated that the notice may expire on either of the usual days appointed for payment of the rent.

#### DILAPIDATIONS.

At the termination of a lease, supposing he has not done so before, a landlord can, and usually does, send a surveyor to report upon the condition of the tenement, and it becomes his duty to ferret out every defect. A litigious landlord may drag the outgoing tenant into an expensive lawsuit, which he has no power to prevent. He may even

compel him to pay for repairing improvements which he has effected in the tenement itself, if dilapidations exist. When the lessor covenants to do all repairs, and fails to do so, the lessee may repair, and deduct the cost from the rent.

#### RECOVERY OF RENT.

The remedies placed in the hands of landlords are very stringent. The day after rent falls due, he may proceed to recover it, by action at law, by distress on the premises, or by action of ejectment, if the rent is half a year in arrear. Distress is the remedy usually applied, the landlord being authorized to enter the premises, seize the goods and chattels of his tenant, and sell them, on the sixth day after the seizure, to re-imburse himself for all arrears of rent and the charges of the distress. There are a few exceptions; but, generally, all goods found on the premises may be seized. The exceptions are, dogs, rabbits, and animals partaking of a wild nature; poultry, fish, tools, and implements of a man's trade; whatever is in the personal use or occupation of a man, as an axe with which he is cutting wood, or a horse which he is riding, things delivered to a man exercising a public trade, to be carried, wrought, or managed in the way of his trade, as a horse standing in a smith's shop to be shod, or in a common inn, or cloth at a tailor's, or corn sent to a mill or market; things in the custody of the law, by seizure, or in execution under legal process; fixtures or things fixed to the freehold, as caldrons, cranes, windows, doors, and chimney-pieces; beasts of the plough, and sheep, and instruments of husbandry, and the instruments of a man's trade or profession, as the axe of a carpenter, the books of a scholar and the like. Distress can only be levied in the daytime, and if made after the tender of arrears, it is illegal. If tender is made after the distress, but before it is *impounded*, the landlord must abandon the distress and bear the cost himself. Nothing of a perishable nature, which cannot be restored in the same condition—as milk, fruit, and the like, must be taken.

The law does not regard a day as consisting of portions. The popular notion that a notice to quit should be served before noon is an error. Although distraint is one of the remedies, it is seldom advisable in a landlord to resort to distraining for the recovery of rent. If a tenant cannot pay his rent, the sooner he leaves the premises the better. If he be a rogue and won't pay, he will probably know that nine out of ten distresses are illegal, through the carelessness, ignorance, or extortion of the brokers who execute them. Many, if not most, of the respectable brokers will not execute distresses, and the business falls into the hands of persons whom it is by no means desirable to employ. A landlord is liable for the illegal acts of the person whom he may employ, although he would have a remedy over against him for any damage he may sustain through such acts. Whether or not he may recover will depend upon the ability of the agent to pay.

Powers to relieve landlords, by giving them legal possession of premises, are given by 19 & 20 Vict., cap. 108, to the county courts, in cases where the rent does not exceed £50 per annum, and under the circumstances hereinafter mentioned, *i.e.* :—

1. Where the term has expired, or been determined by notice to quit.
2. Where there is one half-year's rent in arrear, and *the landlord shall have right by law to enter for the nonpayment thereof.* As proof of this power is required, the importance of including such a power in the agreement for tenancy will be obvious.

In the county courts the amount of rent due, as well as the possession of the premises, may be claimed in one summons.

When a tenant deserts premises, leaving one half-year's rent in arrear, possession may be recovered by means of the police-court. The rent must not exceed £20 per annum, and must be at least three-fourths of the value of the

premises. In cases in which the tenant has not deserted the premises, and where notice to quit has been given and has expired, the landlord must give notice to the tenant of his intended application. The annual rent in this case, also, must not exceed £20.

#### THE I. O. U.

The law is not particular as to orthography; in fact, it distinctly refuses to recognize the existence of that delightful science. You may bring your action against Mr. Jacob Phillips, under the fanciful denomination of Jaycobb Fillipse, if you like, and the law won't care, because the law goes by ear; and, although in some cases it insists upon having everything written, things written are only supposed in law to have any meaning when read, which is, after all, a common-sense rule enough. So, instead of "I owe you," persons of a cheerful disposition, so frequently found connected with debt, used to write facetiously I. O. U., and the law approved of their so doing. An I. O. U. is nothing more than a written admission of a debt, and may run thus:—

15th October, 1860.

To Mr. W. BROWN.

I. O. U. ten pounds for coals.

£10.

JOHN JONES.

If to this you add the time of payment, as "payable in one month from this date," your I. O. U. is worthless and illegal (unless it bear the proper bill stamp); for it then ceases to be a mere acknowledgment, and becomes a promissory note. Now a promissory note requires a stamp, which an I. O. U. does not.

#### APPRENTICES.

By the statute 5 Eliz. cap. 4, it is enacted that, in cases of ill-usage by masters towards apprentices, or of neglect of duty by apprentices, the complaining party may apply to a



justice of the peace, who may make such order as equity may require. If, for want of conformity on the part of the master, this cannot be done, then the master may be bound to appear at the next sessions. Authority is given by the act to the justices in sessions to discharge the apprentice from his indentures. They are also empowered, on proof of misbehaviour of the apprentice, to order him to be corrected or imprisoned with hard labour. If an apprentice absent himself he can be compelled to make up the time after the expiration of his term, so that it be within seven years thereof.

#### HUSBAND AND WIFE.

Contrary to the vulgar opinion, second cousins, as well as first, may legally marry. When married, a husband is liable for his wife's debts contracted before marriage. A creditor desirous of suing for such a claim should proceed against both. It will, however, be sufficient if the husband be served with process, the names of both appearing therein, thus:—John Jones and Ann his wife. A married woman, if sued alone, may plead her marriage, or, as it is called in law, coverture. The husband is liable for debts of his wife contracted for necessities while living with him. If she voluntarily leaves his protection and lives in adultery, this liability ceases. He is also liable for any debts contracted by her with his authority; and the law implies his authority where the debt is for necessities, or in the common course of housekeeping, unless the contrary be proved. If the husband have adjured the realm, or been transported by a sentence of law, the wife is liable during his absence, as if she were a single woman, for debts contracted by her.

In civil cases, a wife may now give evidence on behalf of, or against her husband; in criminal cases she can neither be a witness for or against him; but the case of assault by him upon her forms an exception to this rule.

The law does not at this day admit the ancient principle of allowing moderate correction by a husband upon the

person of his wife. Although this is said to have been anciently limited to the use of "a stick not thicker than the thumb," this barbarity is now altogether exploded. He may, notwithstanding, as has been recently shown in the famous Agapemone case, keep her under restraint, to prevent her leaving him, provided this be effected without cruelty.

By the Divorce and Matrimonial Causes Act, 1857, a wife deserted by her husband may apply to a magistrate, or to the petty sessions, for an order to protect her lawful earnings or property acquired by her after such desertion, from her husband and his creditors. In this case it is indispensable that such order shall, within ten days, be entered at the county court of the district within which she resides. It will be seen that the basis of an application for such an order is *desertion*. Consequently, where the parties have separated by common consent, such an order cannot be obtained, any previous cruelty or misconduct on the husband's part notwithstanding.

When a husband allows his wife to invest money in her own name in a savings bank, and he survives her, it is sometimes the rule of such establishment to compel him to take out administration in order to receive such money, although it is questionable whether such rule is legally justifiable. Widows and widowers pay no legacy or succession duty for property coming to them through their deceased partners.

#### RECEIPTS

For sums above £2 should be now given upon penny stamps. A bill of exchange may nevertheless be discharged by an indorsement stating that it has been paid, and this will not be liable to the stamp. A receipt is not, as commonly supposed, conclusive evidence as to a payment. It is only what the law terms *primâ facie* evidence; that is, good until contradicted or explained. Thus, if A sends wares or merchandise to B, with a receipt, as a hint that the transaction is intended to be for ready money, and B detain the

receipt without paying the cash, A will be at liberty to prove the circumstance and to recover his claim. The evidence to rebut the receipt must, however, be clear and indubitable, as, after all, written evidence is of a stronger nature than oral testimony.

#### BOOKS OF ACCOUNT.

A tradesman's books of account cannot be received as evidence in his own behalf unless the entries therein be proved to have been brought under the notice of, and admitted to be correct by the other party, as is commonly the case with the "pass-books" employed backwards and forwards between bakers, butchers and the like domestic traders, and their customers. The defendant may, however, compel the tradesman to produce his books to show entries adverse to his own claim.

#### WILLS.

The last proof of affection which we can give to those left behind, is to leave our worldly affairs in such a state as to excite neither jealousy, anger, nor heartrendings of any kind, at least for the immediate future. This can only be done by a just, clear and intelligible disposal of whatever there is to leave. Without being advocates for every man being his own lawyer, it is not to be denied that the most elaborately-prepared wills have been the most fruitful sources of litigation, and it has even happened that learned judges have left wills behind them which could not be carried out. Except in cases where the property is in land or in leases of complicated tenure, very elaborate details are unnecessary; and we counsel no man to use words in making his will of which he does not perfectly understand the meaning and import.

All men over twenty-one years of age, and of sound mind, and all unmarried women of like age and sanity, may by will bequeath their property to whom they please. Infants, that is, all persons under twenty-one years of age, and mar-

ried women, except in cases of real estate where they have power reserved by a will or settlement, or in the case of personal estate, it is settled to her "own separate use," are incapacitated. A person born deaf and dumb cannot make a will, unless there is evidence that he could read and comprehend its contents. A person convicted of felony cannot make a will of personalty unless subsequently pardoned, although he may of real property, unless he be punishable with death; but a felon of every description may devise lands in *gavel-kind*, of which description is the land in the greater part of Kent and in some other places. An outlaw, although only for debt, cannot, while the outlawry subsists, make a will of personalty; but the wife of a felon transported for life may make a will, and act in all respects as if she were unmarried. A suicide may bequeath real estate, but personal property is forfeited to the crown.

Except in the case of soldiers on actual service, and sailors at sea, every will must be made in writing. It must be signed by the testator, or by some other person in his presence, and at his request, and the signature must be made or acknowledged in the presence of two or more witnesses, who are required to be present at the same time, who declare by signing that the will was signed by the testator, or acknowledged in their presence, and that they signed as witnesses in the testator's presence, and in the presence of each other.

By the act of 1852 it was enacted that no will should be valid unless signed at the foot or end thereof by the testator, or by some person in his presence, and by his direction; but a subsequent act proceeds to say that every will shall, as far only as regards the position of the signature of the testator, or of the person signing for him, be deemed valid if the signature shall be so placed at, or after, or following, or under, or beside, or opposite to the end of the will, that it shall be apparent on the face of it that the testator intended to give it effect by such signature. Under this clause, a will of several sheets, all of which were duly signed, except the last one, has been refused probate; while, on the other hand,



a similar document has been admitted to probate where the last sheet only, and none of the other sheets was signed. In order to be perfectly formal, however, each separate sheet should be numbered, signed and witnessed, and attested on the last sheet. The witnessing is an important act: the witnesses must subscribe it in the presence of the testator and of each other: and by their signature they testify to having witnessed the signature of the testator, he being in sound mind at the time. Wills made under any kind of coercion, or even importunity, may become void, being contrary to the wishes of the testator. Fraud or imposition also renders a will void, and where two wills made by the same person happen to exist, neither of them dated, the maker of the wills is declared to have died intestate.

A will may always be revoked and annulled, but only by burning or entirely destroying the writing, or by adding a codicil, or making a subsequent will duly attested; but as the alteration of a will is only a revocation to the extent of the alteration, if it is intended to revoke the original will entirely, such intention should be declared,—no merely verbal directions can revoke a written will: and the act of running the pen through the signatures or down the page is not sufficient to cancel it, without a written declaration to that effect signed and witnessed.

A will made before marriage is revoked thereby.

A codicil is a supplement or addition to a will, either explaining or altering former dispositions; it may be written on the same or separate paper, and is to be witnessed and attested in the same manner as the original document.

#### WITNESSES.

Any persons are qualified to witness a will who can write their names, but such witness cannot be benefited by the will. If a legacy is granted to a person witnessing the execution of a will, such legacy is void. The same rule applies to the husband or wife of a witness; a bequest made to either of these is void.



## FORM OF WILLS.

Form is unimportant, provided the testator's intention is clear. It should commence with his designation; that is, his name and surname, place of abode, profession or occupation. The legatees should also be clearly described. In leaving a legacy to a married woman, if no trustees are appointed over it, and no specific directions given, "that it is for her sole and separate use, free from the control, debts, and incumbrances of her husband," the husband will be entitled to the legacy. In the same manner a legacy to an unmarried woman will vest in her husband after marriage, unless a settlement of it is made on her before marriage. A *gift* of real estate (freehold or copyhold) is called a *devise*; of personal estate, a *bequest*.

In sudden emergencies a form may be useful; and the following has been considered a good one for a death-bed will, where the assistance of a solicitor could not be obtained, subject to variation according to circumstances.

I, A. B., of No. 10, — Street, in the city of — [gentleman, builder, or grocer, as the case may be], being of sound mind, thus publish and declare my last will and testament. Revoking and annulling all former dispositions of my property, I give and bequeath as follows:—to my son J. B., of —, I give and bequeath the sum of —; to my daughter M., the wife of J., of —, I give and bequeath the sum of — [if intended for her own use, add "to her sole and separate use, free from the control, debts, and incumbrances of her husband"], both in addition to any sum or sums of money or other property they have before had from me. All the remaining property I die possessed of I leave to my dear wife M. B., for her sole and separate use during her natural life, together with my house and furniture, situate at No. 10, — Street, aforesaid. At her death, I desire that the said house shall be sold, with all the goods and chattels therein [or, I give and bequeath the said house, with all the goods and chattels therein, to —], and the money realized from the sale, together with that in which my said wife had a life-interest, I give and bequeath in equal moieties to my son and daughter before named. I appoint my dear friend T. S., of —, and T. B., of —, together with my wife M. B., as executors to this my last will and testament. Dated this — day of — 18 .

Signed, acknowledged, and declared by the said A. B., as and for his last will and testament in the presence of us, who, being present at the same time in his presence, at his request, and in the presence of each other, have hereunto subscribed our names as witnesses.

T. S., of, &c.  
F. M., of, &c.

It is to be observed that the signature of the testator after this attestation has been signed by the witnesses, is not a compliance with the act; he must sign first.

#### STAMP-DUTIES.

In the case of persons dying intestate, when their effects are administered to by their family, the stamp-duty is nearly half as much more as it would have been under a will. Freehold and copyhold estates are now subject to a special impost on passing, by the Stamp Act of 1857, called "the Succession Duty Act;" but real property is not liable to probate duty, unless it be directed to be sold.

The legacy-duty only commences when it amounts to £20 and upwards; and where it is not directed otherwise, the duty is deducted from the legacy.

You cannot compound for past absence of charity by bequeathing land or tenements, or money to purchase such, to any charitable use, by your last will and testament; but you may devise them to the British Museum, to either of the two universities of Oxford and Cambridge, to Eton, Winchester, and Westminster; and you may, if so inclined, leave it for the augmentation of Queen Anne's bounty. You may, however, order your executors to sell land and hand over the money received to any charitable institution.

If you have advanced money to any child, and taken an acknowledgment for it, or entered it in any book of account, you should declare whether any legacy left by will is in addition to such advance, or whether it is to be deducted from the legacy.

A legacy left by will to any one would be cancelled by your leaving another legacy by a codicil to the same person, unless it is stated to be in addition to the former bequest.

Your entire estate is chargeable with your debts, except where the real estate is settled. If your estate consists of both real and personal property, let it be distinctly stated out of which the debts are to be paid.

Whatever is *devised*, let the intention be clearly expressed, and without any condition, if you intend the devise to take effect.

A formal attestation is not necessary to a will, as the act of witnessing is all the law requires, and the will itself infers the testator to be of sound mind in his own estimation; but, wherever there are erasures, alterations, or interlineations, an attestation should be added. If there be no formal attestation, or it be not to the effect of that of which the form is given in the previous page, or there be none at all, but merely, "witness," or any important alteration in the will, an affidavit of one of the witnesses will be required before probate will be granted, and this will cause trouble and additional expense. No particular form is prescribed; but it should state that the testator either signed it himself, or that another signed it by his request, or that he acknowledged the signature to be his in their presence, both being present together, and signing as witnesses in his presence, and in the presence of each other. When there are additions, alterations, or erasures, the attestation should declare that—The words interlined in the third line of page 4, and the erasure in the fifth line of page 6, or as the case may be, having been first made. These are the acts necessary to make a properly executed will; and, being simple in themselves and easily performed, they should be strictly complied with, and the will should be always attested, as before directed.

A witness may, on being requested, sign for the testator; and he may also sign for his fellow-witness, supposing he can only make his mark, declaring that he does so; but a husband cannot sign for his wife, either as a testator or witness, nor can a wife for her husband.

It is advisable to make the will in duplicate, and intrust one copy to the keeping of your executor, or some other person in whom you have confidence, as it not unfrequently happens that a will is suppressed or destroyed, or not forthcoming when it is most required.—(*Becton*).

## THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Instituted 1838. President, 1867-68.—The Duke of Richmond, K.G. Secretary—H. Hall Dare, Esq., House, No. 12, Hanover Square, London.

The Royal Agricultural Society of England consists of a President, twelve trustees, twelve Vice-Presidents, Governors, and an unlimited number of Members. The Governors pay £5 annually, the Members £1 : or £50 and £10 respectively, for life. The Council consists of the President, Trustees, and Vice-Presidents, elected annually, and of fifty general Members of Council, twenty-five of whom go out annually by rotation, and may be re-elected.

Three general meetings are held every year.—1. The “Anniversary Meeting,” for the election of the President and Council, on the 22nd (or, should that day fall on a Sunday, on the 23rd) day of May. 2.—The “General Meeting,” held in December. 3.—The “County Meeting,” generally in the month of July. The next Annual Exhibition of Live Stock and Agricultural Implements and Machinery will be held at Leicester in 1868.

Every Candidate for admission into the Society as a Governor or Member must be proposed by a Member.

Each Member of the Society, after his election, and on the payment of his subscription, or life-composition, will be entitled to the Part of the Journal in the course of publication.

---

## ROYAL AGRICULTURAL SOCIETY OF IRELAND.

Instituted 1841. President—Lord Talbot de Malahide. Secretary — Captain Thornhill. Accountant — Richard Walker Morgan, Esq. Chemist to the Society—Professor Apjohn. Chambers, 42, Upper Sackville Street, Dublin.

Primary objects of the Society: 1. The establishment of

at least one Annual Agricultural Meeting for the show of Cattle, Implements of Husbandry, Roots, Seeds, &c., to be held in one of the Four Provinces. 2. To encourage the foundation of Local or District Agricultural Societies. 3. To promote Improvement in the Dwellings and Domestic Condition of the Agricultural Population in Ireland. 4. The facility on the part of Members of obtaining at a cheap rate the best scientific Analyses of Soils, Manures, &c.

£10 constitutes a life member, £1 upwards an annual subscriber ; a lady paying 10s. annually becomes an associate.

---

### THE ROYAL DUBLIN SOCIETY.

*For the Promotion of Husbandry and other Useful Arts  
in Ireland.*

President—His Excellency the Lord-Lieutenant of Ireland.  
Secretaries—Viscount Dunlo, and Geo. Woods Mannsell.  
Assistant-Secretary—Wm. Edw. Steele, M.D., and H. C. White, Esq., Registrar. Professors—Agriculture, Edmd. W. Davy, M.B. ; Mineralogy and Geology, John Scouler, M.D.  
Society's House, Kildare Street.

Members are elected by ballot, the admission fees being an annual subscription of £2 2s., with £3 3s. entrance, or a life-composition of £21.

---

### SMITHFIELD CLUB.

President for 1868—Major-General the Hon. A. N. Hood.  
Bankers—Messrs. Hoare, Fleet Street. Hon. Sec.—B. T. Brandreth Gibbs, Esq. Assistant Secretary—Mr. David Pullen. Office, corner of Half Moon Street, Piccadilly.



The Annual Show takes place at the Agricultural Hall, near the Angel, Islington, and is commonly held during the week preceding the Great Metropolitan Market.

The Annual Subscription to the Club is one guinea; any person may compound for his Annual Subscription by one payment of ten guineas. No charge is made for the standing-room of Live Stock exhibited by Members of the Club, but non-Members are required to contribute a fee of one guinea towards the funds of the Club. Visitors pay 5s. for their admission to the show on the first day, and 1s. each day after. Members of the Club whose subscriptions are paid up, and Exhibitors of Stock, are admitted to the galleries free during the judging, and also to the entire show on other days.

A list of the prizes for the present year may be obtained by a post-paid application to the Assistant-Secretary, at the office as above. The entries for Live Stock always close on the 1st November, and for Implements on the 1st of October

---

## THE FARMERS' CLUB.

Chairman for the year 1868, C. S. Read, Esq., M.P., Plumstead, Norwich. Bankers—London and County Bank, Lombard Street. Secretary—Henry Corbet, Esq., Club-house, The Salisbury Hotel, Salisbury Square, Fleet Street, London.

The Club House is always open to Members at a subscription of one guinea per annum, with an entrance-fee, on election, of another guinea. There are Discussion Meetings on the first Mondays in February, March, April, May, and November, and on the Monday in the Smithfield Club Cattle Show week. A Monthly Journal is published for circulation amongst the Members, giving full reports of the Discussions and other proceedings. The Committee meet on the first Monday in the month for the election of Members, and other business.

## ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

President of Council—Duke of Marlborough.

Students are admitted either as boarders or out-students, but in no case under sixteen years of age. The annual fee for boarders is £92, and for out-students £44. The College course of lectures and practical instruction is complete in two years.

Every information can be obtained by application to the Principal, the Rev. John Constable, M.A., Trinity College, Cambridge.

---

## THE CENTRAL CHAMBER OF AGRICULTURE.

11, WATERLOO PLACE, PALL MALL.

Chairman—Albert Pell, Esq., Hazelbeach Hill, Northampton.

Secretary—John Algernon Clarke.

The object of the Chamber to be to watch over all measures affecting the agricultural interests, both in and out of Parliament, and to take such action thereon as may seem desirable for the benefit of agriculture.

---

## AGRICULTURAL SOCIETIES.

Places.	Secretaries.	Places.	Secretaries.
Aberdeen (Roy. N.)	A. Harvey	Andover . . . . .	W. Lamb
Abergavenny . . . . .		Anglesey . . . . .	C. Bicknell
Abingdon . . . . .	C. J. Cox	Annandale . . . . .	W. Dobie
Alford . . . . .	J. Higgins	Appleby . . . . .	J. Nicholson
Alfreton . . . . .	J. Haslam	Ardrossan . . . . .	D. J. Mack
Allendale . . . . .	J. Walton	Argyle . . . . .	J. Watson
Alston . . . . .	Isaac Walton	Armagh . . . . .	A. Small & W. Wann
Altrincham . . . . .		Arran . . . . .	James Paterson

Places.	Secretaries.	Places.	Secretaries.
Auchtermuchty	H. W. Walker	Bucklivic	J. Dunn
Auckland, W.	C. Smyth	Buxton	S. Turner
Ayrshire	J. M'Murtrie	Caithness	A. Keir
Badminton	C. Dowding	Caistor	W. Torr
Bakewell	T. M. Leach	Callington	John Clements
Ballinasloe	J. Gill	Canford	S. Seymer
Ballymena	J. Dick & A. Davis	Cannock	C. F. Cotterill
Ballymony	Hugh Moore	Cardigan	R. D. Jenkins
Banbury	B. W. Aplin	Carlisle	Thos. James
Bandon		Carlow	J. Newton
Banffshire	A. Souter	Carmarthen	Prosser
Bangor	J. Kennedy	Carrickfergus, &c.	J. Borthwick
Barhead	R. Glen	Castle Douglas	F. Maxwell
Barnard Castle	W. Watson	Cavan	A. Carden
Barnstaple and North Devon	G. Langdon and G. Lock	Chaddeston (Lancashire)	
Barretts and E. Musk, Dr. Barter		Chepstow	
Bath and West of England	H. S. Maule, Esq.	Chertsey	W. Kempson
Beebles	J. Gibson	Cheshire, S.	R. T. Beckett
Bedford	Henry Pain	Chippenham	Edward Little
Beith	Hugh Ritchie	Cirencester	G. R. Barker
Belfast	G. G. Bingham	Clevedon	W. Hollyman
Bellingham	G. Dixon	Cleveland	W. Scarth
Berkeley	C. Tonge	Clones (Monagh.)	Geo. Shegog
Berks (Roy. E.)	W. Bulstrode	Coleraine	H. Moody
Berwickshire		Conway	Mr. Owen
Beverley	J. Boyes	Cork	W. Meade
Bicester	W. E. Hitchman	Cornwall, Royal	H. Tresawna
Bingham (Notts)	G. Storer, H. S.	Cornwall, E.	C. Childs
Birmingham and Midland Counties	T. B. Lythall	Cowbridge	E. Bradley
Bishop Auckland	W. Hepple	Craven	M. Scott and G. Kendall
Blackpool	Jos. Worthington	Crickhowell	E. Davis, H. S.
Blandford	J. Roe	Cumberland, E.	T. James
Blofield	Rev. E. Sidney	Cumberland & West.	G. Smith
Bolsover	J. Wright	Dalkeith	G. Watson
Boro'bridge	C. F. G. Clark	Dalry	J. Skirratt
Botley	W. C. Spooner	Darnsbury and Frodsham	H. Linaker
Brackley	R. J. Russell	Daresbury	J. Worthington
Brecon	R. Hall	Darlington Asso.	Geo. Welsh
Bridgenorth	J. Taylor	Debenham	
Bridlington	R. Allison	Deeping St. Nicholas	W. Hunt, H. S.
Brigg	F. Garfit	Derbyshire	J. Hewitt
Buchan	J. Ferguson	Devon	J. Oldrieve
Bucks, Central	G. Fell	Devon, S.	J. Spence
		Doagh (Antrim)	J. Alexander

Places.	Secretaries.	Places.	Secretaries.
Donegal.....	C. Johnston	Halesworth .....	G. Rackham
Donnington .....	J. Cole	Halifax & C. Vale ..	W. Irvine
Doune.....	H. M'Lachlan	Halstead .....	R. Emson
Dover.....	G. Easter	Haltwhistle .....	J. Clarke
Down .....	A. Nugent	Harewood .....	J. Parker
Downham.....	T. L. Reed, H. S.	Hawick .....	J. Oliver
Dromore.....	Dr. Macart	Henstead ..	Waters & Simpson
Drymen.....	H. Jollie	Hereford .....	Jas. Fowler
Dumfriesshire....	A. Stevenson	Herefordshire .....	O. Fowler
Dunblane .....	W. Cousine	Herefordshire, W.	J. Matthews
Dunfermline ....	J. Macfarlane	Hertfordshire ..	G. Pepingham
Dunmow.....	— Blyth	Hexham .....	J. Lee
Durham, North....	J. Hodgson	Hinckford (Essex)..	
Durham, South....	R. Dixon	Holderness.....	J. Iveson
East Sussex.....	H. J. Bartlett	Horncastle .....	G. Griffin
Enniscorthy.....	J. Wilkinson	Howdenshire.....	W. Carsken
Enniskillen..	H. M. Richardson	Howick .....	A. Elliott
Epperston & Woodborough....	Mr. Bausor	Hungerford .....	G. Collett
Essex .....	Mr. Emson	Huntingdonshire .....	J. Dilly
Eskdale & Lid..	Mr. Stevenson	Innerleithen .....	J. Lyle
Evesham .....	Alfred Huband	Inverness .....	H. Fraser
Eye.....	G. Moore	Isle of Thanet ..	G. R. Harnett
Fareham.....	C. Osborne	Isle of Wight..	H. D. Cole, H. S.
Faringdon.....	E. Moore	Ilsley .....	W. Hulbert
Faversham .....	J. Tussell	Kanturk (Cork) ....	G. Conner
Fife .....	Wm. Dingwall	Keighley .....	W. Fawcett
Flint ..	E. Williams, T. Jenkins	Kells.....	T. Barnes, jun.
Flintshire.....	G. Billy	Kendal.....	F. C. Ellison
Forfarshire .....	R. Hector	Kent .....	C. J. Cooke
Framlingham.....	D. Smith	Kerry .....	G. Sandes
Gainsborough....	J. C. Walton	Keevil District ....	J. I. Watts
Galashiels.....	A. Rutherford	Kilburnie.....	J. Allan
Galloway.....	D. Guthrie	Kilkenny .....	E. Byrne
Gargunock (Stir.)..	T. Leishman	Kilmarnock.....	W. Aitken
Garstang.....	T. Wilkinson	Kilwinning .....	H. King
Garioch .....	W. Shand	Kingscote .....	E. Drew
Girvan.....	J. Maclimont	Kinglassie .....	J. Meikle
Glamorgan .....	E. Bradley	Kinsale .....	T. W. Knolls
Glo'stershire .....	E. Trinder	Kirkcaldy.....	D. Anderson
Goole (Yorks.)....	T. H. Capes	Lampeter.....	Wm. Rees
Grantham.....	W. Waggstaffe	Lamport.....	W. Watson
Greasley and Selstone		Lancashire, Royal N..	G. Hunt
Great Budworth ....	J. Hornby	Lancaster .....	J. Welch
Grimsby .....	F. Iles	Latheron, Caith .....	J. Scott
Hadleigh .....	W. Grimwade	Lauderdale..	Alex. Crawford & T. Simson

Places.	Secretaries.	Places.	Secretaries.
Launceston.....	R. Raddall	Money more .....	J. Scott
Lavenham .....	W. Scott	Monmouth .....	H. Dyke
Ledbury.....	W. Stallard	Neilston .....	M. Anderson
Leicestershire....	T. C. Browne	Nenagh J. R. Minnitt & J. Poe	
Leitrim .....	M. Burns	Netherby.....	— Yule
Leominster.....	G. Tomkins	Newton-Abbot ....	W. Rendell
Lewes Stock Sh..	H. J. Bartlett	Nithsdale. .	James Russell, M.D.
Lifford.....	H. Stewart	Norfolk.....	E. C. Bailey
Limerick.....	E. Gabbett	Northallerton .	W. S. Jefferson
Lincolnshire .....	J. Hett	Northamptonshire .	J. M. Lovett
Llandilo.....	G. J. Griffiths	North Hants ....	Henry Downs
Lochaber .....	J. Bett	North Walsham.....	R. Atlee
Lockerbie .....	J. Graham	Northleach.....	
Londonderry .....	T. Watson	Northumberl..	Walker Johnson
Long Sutton .....	J. Clarke	Norton .....	F. Silver
Lonsdale, N. .	J. Postlethwaite	Oakerthorpe.....	
Lonsdale, S. ....	M. Morphitt	Ormskirk & Southport	J. Brown
Lostwithiel....	J. W. A. Drewe	Oswestry.....	
Lothian, E.....	R. Richardson	Otley .....	
Loughborough .	D. Cartwright	Over .....	T. Rigby
Louth.....	J. Wilson	Owston (Notts)..	
Louth, County....	A. Shekleton	Oxford & Banbury	J. Plowman
Ludlow.....	Thos. Weyman	Paisley .....	P. Henderson
Lytham.....	T. Fare	Peeblesshire .....	A. Blackie
Maidstone Cattle Show Soc.		Pembrokeshire..	Richard James
Mallow.....	Robt. Newman	Penrith .....	Thos. Bowstead
Malpas .....	W. Brittain	Penwith, W. ....	H. Pascoe
Malton.....	Alfred Simpson	Penwith, E.....	A. Powell
Man, I. of .	S. S. Rogers, H. S.	Perth .....	M. Jaimeson
Manchester & Liv.	T. B. Ryder	Peterborough ....	W. Laurence
Mar ....	S. Campbell Kinnellar	Petworth .....	W. Death
Market Drayton..	W. D. Green	Plympton.....	J. Andrew
Market Harbro' .	J. L. Douglas	Portlaw .....	J. Martin
Marlbro' .....	W. Rowland	Probus .....	H. Tresawna
Mayfield ....	D. Barclay, H. S.	Pwllheli .....	Owen Evans
Mearns .....	J. Herbertson	Rawcliffe .....	P. Dunderdale
Melksham.....	P. Phelps	Radnorsh. J. H. Edwards, H. S.	
Melplash (Dorset)..	W. G. Pope	Reading .....	E. Pike
Melrose .....	J. Curl	Renfrewshire.....	J. Anderson
Middlesex, S. W....	J. Gotelee	Richhill .....	N. Greer
Middleton (Cork)..	A. McCarthy	Richmond.....	H. I. Turner
Mid-Lothian, W. dist.	J. Hislop	Ripley (Yorks.)....	Qn. Acomb
Milnthorpe ....	Edward Hutton	Ripon and Claro .....	T. Scott
Milborne .....	R. Fookes	Roach Abbey .....	H. Ellison
Modbury .....	J. Kelly	Romsey.....	W. Eggar
Monaghan .....	B. Brooke	Roscommon.....	C. Gaskine



cxcviii SECRETARIES TO AGRICULTURAL SOCIETIES.

Places.	Secretaries.	Places.	Secretaries.
Ross.....	C. Cadle	Thame.....	
Roxburghshire.....	R. Currie	Thornhill.....	Dr. Russell
Rugby.....	Ed. Harris	Thurles.....	
Rugeley.....	James Mellard	Tipperary, S.....	W. Bolton
Rutland..	W. Fowler, E. Wortley	Torksey, Fenton, and Dodding- ton.....	T. J. Thorpe, H.S.
Ryedale & Pickering	J. Phillips	Torrington, Gt.....	J. Ridson
Saford, &c. ....	J. Henry	Tredegar.....	J. G. Palling
Selby Soc. ....	Mat. Pearson	Trigg.....	J. Collins
Selkirkshire.....	P. Rodger	Tring.....	W. Brown
Shenstone and Wreford .....	R. W. Essington	Tuam.....	J. Hopkins
Shetland.....	Jno. Walker	Tyne, N.....	J. Dixon
Shropshire.....	T. Weyman	Tyne, S.....	J. Clarke
Skibbereen.....		Tyneside..	M. Stephenson, H.S.
Skipton.....	J. Robinson	Tyrone.....	J. M'Crae
Sleaford.....	J. Bellamy	Upton (Notts).....	
South Avon....	G. O. Aldridge	Usk.....	J. H. Clark
South Hams....	T. Kelly, H. S.	Wayland.....	
Spalding ..	C. F. Bonner, H. S.	Wadebridge.....	R. Pollard
Sparkenhoe.....	J. Davenport	Wakefield.....	W. Barrett
Spey (Banff) .....	J. Bennett	Waltham and North Leicester..	Mr. Shepherd
St. Austell ....	W. H. Roberts	Wareham.....	R. Filliter
St. Quivox.....	D. Gairdner	Watlington.....	W. G. Spyer
Staindrop.....	R. Barnes, H. S.	Warwickshire.....	J. Moore
Staffordshire	N. W. Tomkinson	Wellesbourne.....	J. Ford
Stewponey ....	J. H. H. Foley, C. Thompson	Wallingborough ..	J. Sharman
Steyning Cattle Show .....	J. Tribe, H. S.	Wenlock.....	R. Davies
Stirling.....	W. Ewing	Wentworth.....	W. Newman
Stow-on-the-Wold & Chipping Norton .....	J. Sewell	Weobly.....	J. Bull
Stranraer.....	J. Murdoch	West Cumberland..	R. Jefferson
Strathbogie.....	W. Murdock	Westharptree.....	W. Yorke
Strathista ....	James Lumsden	Westmeath.....	R. Rennell
Strathspey.....	H. Fraser	Wetherby.....	J. Coates
Suffolk.....	R. Bond	Wexford, S.....	J. Meadows
Sussex.....	H. Davey	Wexford, N.....	S. Richards
Surrey, East.....	T. Richards	Wharfedale.....	W. Barrett
Tamworth.....	E. Willington	Wharfedale (Otley)....	Geo. Lee
Tarbolton.....	T. Brown	Whitehaven ....	J. Thompson
Tavistock and W. Devon .....		Whitby Dist. ....	J. Hugell
Teesdale.....	[J. Benson	Wicklow.....	C. Symes
Tetney.....	J. S. Foster	Wigton.....	D. Harrison
Tetbury.....	H. Holborrow	Wigtonshire.....	J. M'Lean
Teviotdale, West ....	J. Oliver	Wiltshire.....	E. Little
		Winfrith.....	G. Reader
		Wirksworth.....	J. Parkin

Places.	Secretaries.	Places.	Secretaries.
Wirral .....	W. Booth	Wormside .....	T. Wood
Witham .....	H. S. Gilson	Wragby .....	J. Harrison
Wokingham .....	Dalley	Wrinton & Burr'ton .	C. Parker
Woodstock .....	H. Turner	Yeovil, J. Noake Highmore, H.S.	
Worcestershire, .....	H. Lakin	Yorkshire .....	T. Parrington

## FARMERS' CLUBS.

Places.	Secretaries.	Places.	Secretaries.
Abbey Holme, Cultram .	J. Steel	Kirtle-Water . . . . .	— Carruthers
Abergavenny .	W. H. Walbridge	Lincoln .....	H. K. Hebb
Ardleigh .	W.P. Partridge, [H.S.	Little Miln .....	D. Gemmell
Ardrossan . . . . .	F. Russell, H.S.	Maybole .....	W. Brown
Aveleigh . . . . .	E. Woodthorpe	Mearns .....	A. Mather
Bakewell . . . . .	L. Furniss	Melrose .....	W. Hastie
Banffshire .....	W. L. Taylor	Monmouth . B.W. Purchas, H.S.	
Biggar .....	J. Watt	Much Wenlock . . . . .	R. Davis
Black Isle, N.B. . . . .	G. Gillanders	Newton Abbott Agricultural	
Bocking & Baintree .	F. Smoothy	Reading Society . . . . .	J. Creed
Botley . . . . .	— Spooner	North Cornwall Experimental	
Bramcote (Notts) . . . . .		Oxford .....	J. Plowman
Callington .....		Penrith .....	B. T. Sweeten
Cardiff . . . . .	E. W. David	Peterboro' (Farmers' and Gra-	
Chepstow .....		ziers')	
Chichester . . . . .	W. H. Mason	Plympton St. Mary . . . . .	W. H.
Collingham .....	G. Fletcher		Molesworth
Croydon .....		Probus .....	Henry Tresawna
Dublin .....	M. Callanan	Reading . . . . .	A. Dickson and M.
East Kent . . . . .	T. W. Collard, H.S.		Sutton, H.Ss.
Easter Ross, N.B. . . . .	K. Murray	Richmond (Yorkshire) . . . . .	H. J.
Framlingham . . . . .	H. Clutton		Turner, H. S.
Girvan . . . . .	J. McClymont	Ringwood .....	H. Bone
Gisbro' .....		Ross . . . . .	W. Price, H.S.
Glenluce .....	J. Ross	Selkirkshire .....	J. Lang
Hadleigh . . . . .	W. Grimwade	St Peter's (Kent) . . . . .	J. C. Bennett
Halesworth .....	C. Lenny	St. Quivox . . . . .	J. Drennan
Harleston . . . . .	W. L. B. Fruern	Sparkenhoe . R. H. Chapman, C.	
Heath .....	J. Rome	Staindrop .....	Mr. Watkin
Hexham .....	Wm. Cook	Stewpony .....	J. Nock, H.S.
Holderness Ag. Soc. . . . .	J. Iveson	Stranraer .....	C. Browne
Hereford . . . . .	A. H. Apperley	Tavistock .....	W. Merrifield
Ipswich . . . . .	R. L. Everett	Torrington . . . . .	G. Bragington
Kelso .....	R. Roan	Usk G.R. Greenhow Relph, H.S.	

Places.	Secretaries.	Places.	Secretaries.
Vale of Avon . . . . .	C. Reaks	Wentworth (York) . . . . .	W. Newman
Wadebridge . . . . .	J. Lakeman	West Firc . . . . .	C. P. Valentine
Wakefield . . . . .	H. Briggs, H.S.	Wirral . . . . .	Thos. Jackson
Wester Ross, N.B. . . . .	W. Ross	Wiveliscombe . . . . .	
Wetherby . . . . .	John Hannam	Yoxford . . . . .	R. Hughman

## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

### RULES OF COMPETITION FOR PRIZE ESSAYS.

1. All information contained in Prize Essays shall be founded on experience or observation, and not on simple reference to books or other sources. Competitors are requested to use foolscap or large letter-paper, and not to write on both sides of the leaf.

2. Drawings, specimens, or models, drawn or constructed to a stated scale, shall accompany writings requiring them.

3. All competitors shall enclose their names and addresses in a sealed cover, on which only their motto, the subject of their Essay, and the number of that subject in the Prize List of the Society, shall be written.

4. The President or Chairman of the Council for the time being shall open the cover on which the motto designating the Essay to which the Prize has been awarded is written, and shall declare the name of the author.

5. The Chairman of the Journal Committee shall alone be empowered to open the motto-paper of any Essay not obtaining the Prize, that he may think likely to be useful for the Society's objects; with a view of consulting the writer confidentially as to his willingness to place such Essay at the disposal of the Journal Committee.

6. The copyright of all Essays gaining Prizes shall belong to the Society, who shall accordingly have the power to publish the whole or any part of such Essays; and the other

Essays will be returned on the application of the writers; but the Society do not make themselves responsible for their loss.

7. The Society are not bound to award a Prize unless they consider one of the Prizes deserving of it.

8. In all reports of experiments the expenses shall be accurately detailed.

9. The imperial weights and measures only are those by which calculations are to be made.

10. No Prize shall be given for any Essay which has been already in print.

11. Prizes may be taken in money or plate, at the option of the successful candidate.

12. All Essays must be addressed to the Secretary, at the house of the Society, on or before the 1st of March, 1868.

#### MEMBERS' PRIVILEGES OF CHEMICAL ANALYSIS.

The Council have fixed the following rates of Charge for Analyses to be made by the Consulting Chemist for the *bonâ fide* use of Members of the Society, who (to avoid all unnecessary correspondence) are particularly requested, when applying to him, to mention the kind of analysis they require, and to quote its number in the subjoined Schedule. The charge for analysis, together with the carriage of the specimens, must be paid to him by Members at the time of their application.

- |   |      |
|---|------|
| No. 1.—An opinion of the genuineness of Peruvian guano, bone-dust, or oil-cake (each sample)  | 5s.  |
| „ 2.—An analysis of guano, showing the proportion of moisture, organic matter, sand, phosphate of lime, alkaline salts, and ammonia | 10s. |

No. 3.—An estimate of the value (relatively to the average of samples in the market) of sulphate and muriate of ammonia, and of the nitrates of potash and soda - -	10s.
„ 4.—An analysis of superphosphate of lime for soluble phosphates only - - -	10s.
„ 5.—An analysis of superphosphate of lime, showing the proportions of moisture, organic matter, sand, soluble and insoluble phosphates, sulphate of lime, and ammonia - - - - -	£1
„ 6.—An analysis (sufficient for the determination of its agricultural value) of any ordinary artificial manure - - - - -	£1
„ 7.—Limestone :—the proportion of lime, 7s. 6d. ; the proportion of magnesia, 10s. ; the proportion of lime and magnesia - -	15s.
„ 8.—Limestone or marls, including carbonate, phosphate, and sulphate of lime, and magnesia with sand and clay - - -	£1
„ 9.—Partial analysis of a soil, including determinations of clay, sand, organic matter, and carbonate of lime - - - -	£1
„ 10.—Complete analysis of a soil - - -	£3
„ 11.—An analysis of oil-cake, or other substance used for feeding purposes ; showing the proportion of moisture, oil, mineral matter, albuminous matter, and woody fibre ; as well as of starch, gum, and sugar, in the aggregate - - - - -	£1
„ 12.—Analyses of any vegetable product - -	£1
„ 13.—Analyses of animal products, refuse substances used for manure, &c. from 10s. to 30s.	
„ 14.—Determination of the “hardness” of a sample of water before and after boiling - - - - -	10s.
„ 15.—Analysis of water of land drainage, and of water used for irrigation - - -	£2



No. 16.—Determination of nitric acid in a sample of  
water - - - - - £1

*N.B.—The above Scale of Charges is not applicable to the case of persons commercially engaged in the manufacture or sale of any substance sent for analysis.*

The address of the Consulting Chemist of the Society is Dr. Augustus Voelcker, 101, Leadenhall Street, London, E.C., to which he requests that all letters and parcels (postage and carriage paid) should be directed.

#### MEMBERS' VETERINARY PRIVILEGES.

##### I.—SERIOUS OR EXTENSIVE DISEASES.

No. 1. Any Member of the Society who may desire professional attendance and special advice in cases of serious or extensive disease among his cattle, sheep, or pigs, and will address a letter to the Secretary, will, by return of post, receive a reply stating whether it be considered necessary that Professor Simonds, the Society's Veterinary Inspector, should visit the place where the disease prevails.

No. 2. The remuneration of the Inspector will be £2 2s. each day as a professional fee, and £1 1s. each day for personal expenses; and he will also be allowed to charge the cost of travelling to and from the locality where his services may have been required. The fees will be paid by the Society, but the travelling expenses will be a charge against the applicant. This charge may, however, be reduced or remitted altogether at the discretion of the Council, on such step being recommended to them by the Veterinary Committee.

No. 3. The Inspector, on his return from visiting the diseased stock, will report to the Committee, in writing, the results of his observations and proceedings, which report will be laid before the Council.

No. 4. When contingencies arise to prevent a personal discharge of the duties confided to the Inspector, he may, subject to the approval of the Committee, name some competent professional person to act in his stead, who shall receive the same rates of remuneration.

## II.—ORDINARY OR OTHER CASES OF DISEASE.

Members may obtain the attendance of the Veterinary Inspector on any case of disease by paying the cost of his visit, which will be at the following rate, viz., £2 2s. per diem, and travelling expenses.

## III.—CONSULTATIONS WITHOUT VISIT.

Personal consultation with Veterinary Inspector	5s.
Consultation by letter      ...      ...      ...	5s.
Consultation necessitating the writing of three or more letters      ...      ...      ...	10s.
Post-mortem examination, and report thereon ...	10s.

A return of the number of applications during each half-year being required from the Veterinary Inspector.

## IV.—ADMISSION OF DISEASED ANIMALS TO THE VETERINARY COLLEGE; INVESTIGATIONS, LECTURES, AND REPORTS.

No. 1. All Members of the Society have the privilege of sending cattle, sheep, and pigs to the Infirmary of the Royal Veterinary College on the same terms as if they were members of the College; viz., by paying for the keep and treatment of cattle 10s. 6d. per week each animal, and for sheep and pigs "a small proportionate charge to be fixed by the Principal, according to circumstances."

No. 2. The College has also undertaken to investigate such particular classes of disease, or special subjects connected with the application of the Veterinary art to cattle, sheep, and pigs, as may be directed by the Council.

No. 3. In addition to the increased number of lectures now given by Professor Simonds—the Lecturer on Cattle

Pathology—to the pupils in the Royal Veterinary College, he will also deliver such lectures before the Members of the Society, at their house in Hanover Square, as the Council shall decide.

No. 4. The Royal Veterinary College will from time to time furnish to the Council a detailed report of the cases of cattle, sheep, and pigs treated in the Infirmary.

---

## THE TRADE OF THE YEAR 1867.

1867 was a successful year to the corn trade, which, however, we are grieved to say, was an exception to the general financial and commercial stagnation. We are sorry to have to record bread riots last autumn, an unjust and useless revenge for the high prices upon innocent shopkeepers. After a long and severe winter, April broke in upon us like a summer month, followed by a winter May, and, with the exception of a few intensely hot days about the middle of August, by another cloudy, cheerless summer. The autumn was more genial, and the present winter, so far as we have entered, has been favourable, and a large breadth of wheat was well got in. The effects of the past season were injurious to all grain as well as to the potatoes, but beneficial to the hay and root crops, both of which were abundant. The continent of Europe generally also suffered from the extremes of temperature during the spring months, thereby partly or wholly losing the rye crops and lessening the produce of other kinds of grain. In Russia, Finland, Sweden (especially the Eastern side), Denmark, and in the German States, the rye crops failed to a sad extent, and we hear from parties whose veracity we do not doubt, that the barks of trees, and the pulp taken from the interior of a description of bulrush, is now mixed with oats ground up with their husks, and used as food by the peasantry of

Sweden. In Russia, rye has reached such a price that distillers cannot afford to use it (a most unusual circumstance), and they are now obliged to take oats. The maize crops on the continent were from one-third to one-half, and we hear of estimates as low as two-thirds, deficient in quantity. The potato crops in the United Kingdom were worse than at any period since the terrible Irish famine years, 1845-46. Under these circumstances we cannot look to any substitute for wheaten bread at its present relative value; it is, therefore, probable that the consumption of bread, notwithstanding the want of employment amongst the labouring classes, will not be less than on ordinary occasions. The total importation of all kinds of grain and flour into the United Kingdom last year was about 65,300,000 cwts., against 62,278,170 cwts. in 1866. The total estimated value, in the absence of complete government returns, we set at about £40,000,000, against £29,802,301 in 1866. The number of grain cargoes on passage to the United Kingdom from the south of Europe and America, according to the latest accounts, is 562 against 410 at the corresponding date in the previous year, viz., of wheat 423 against 324; of barley 39 against 28; and of maize only 6 against 6.

#### WHEAT.

It would indeed have been strange, hardy as this plant is, had the last crop turned out to be good either in quantity or quality, considering that the seed planted was itself badly sown, that much of the land was in a very indifferent condition to receive it, and the entire season, up to the time of harvest, was in every respect unpropitious; notwithstanding the severe frost in May the plant looked so healthy and strong, and the bulk of straw was so great, that good judges considered there would be a bountiful produce of wheat, more particularly in Lincolnshire and Essex, and few in the trade acted upon the chances of a bad harvest, and it was not until actual deliveries of the new



crop that the doubts of the few were dissipated into a general belief in the really dangerous position of matters. In consequence of the great variation in the accounts given, it is unusually difficult for us this year to arrive at a correct idea of the produce per acre; we may, however, venture to say that it has turned out much shorter than was expected, even at harvest time, and it has not improved by experience of the threshing, either in quantity or quality. This May frost, however, caused much blight in most counties, and we hear of a field here and there producing one quarter to the acre instead of five. The first samples appeared at our market on 12th August, or the corresponding Monday to last year, and fourteen days later than the previous. The natural weights are under those of last year, bad as they then were, those from Essex the worst. Occasional samples come up to 62lbs., the best runs not over 61lbs., second quality runs not over 59lbs., and a considerable number of blighted and badly harvested samples vary from 58lbs. to 56lbs. per bushel. We much doubt if the aggregate average weight for the kingdom can be called up to 60lbs., a deficiency of more than 3 per cent. compared with an average season, say 62lbs. According to official returns the breadth of land in England under this crop was rather less than the previous year. In Scotland and in Ireland slightly more. From the most careful accounts we have been able to collect we estimate the deficiency in the yield per acre in England at about 20 per cent., making a total loss in weight and measure equal to fully 3 millions qrs. on the estimated average growth. We therefore think we shall want an importation of fully 10 millions qrs. wheat and flour, from the 1st September, 1867, to the 31st August, 1868. We would here remark, that we feel confirmed in our present estimate, by that declared by us last year, viz., nine millions qrs., for although we only received 7,600,000, it must be borne in mind that at last harvest, farmers' stocks were nearly exhausted, and granary stocks extremely low, thus leaving us in a precarious situation;



and it is no exaggeration to say, that the  $1\frac{1}{2}$  million had thus been made up, and that the sudden conviction of the trade to this fact materially aided the subsequent rise in prices. Foreign supplies of wheat and flour into the United Kingdom since the 1st September (the commencement of the cereal year) have been at the rate of rather more than 10 millions qrs. for the twelve months, against nearly 6 millions the previous year, and since the 1st of November, over 12 millions against 8 millions the previous year. Farmers' deliveries of wheat since the 1st September have been at the rate of nearly  $10\frac{1}{2}$  millions qrs. per annum, against  $11\frac{1}{4}$  millions the previous year, and since the 1st of November at nearly  $10\frac{1}{4}$  millions against rather over 11 millions the previous year. It is generally acknowledged that up to this date, say 20 weeks from the first show of samples, farmers have threshed out from 50 to 70 per cent. (a much larger proportion than usual) of the new crop, while in 1866 one-half was old, and in the previous year two-thirds. It seems, therefore, evident that their supplies must be more thinly spread over the remaining 32 weeks, or they will suddenly fall off altogether before we begin upon the next harvest, should this be even at an early period. In Scotland the crop is said to be quite as deficient and defective as our own. Since last harvest all the countries in Europe (South Russia and Hungary excepted) have been considerable purchasers of wheat or rye, and we fully expect this will continue to be the case until good crops have been secured at the next harvest. France had a deficient crop and will probably want five millions quarters. She imported from 1st September to 31st October 1867, her last account published, 955,384 qrs., and exported to nearly the same extent, while in the month of November alone about 500,000 qrs. of wheat went into Marseilles and was disposed of on rising markets to Spain, Paris, &c., and stocks there are now very moderate. Algeria has suffered lamentably from want of food both for man and beast. Egypt has resumed her grain trade, but not yet on the former scale. In Southern Russia the dis-

tricts which ship from the Azoff, secured about average crops in quantity and of fine quality, with the exception of the line and Yeisk from Taganrog, which were small and of middling quality. The Danube had a large and fine crop in Wallachia, but in Moldavia about half a crop only. In Bessarabia there was almost a total failure; the shipments, therefore, from Odessa will not be so large as those of last year. America, to which country a few months since we were sending wheat and flour, secured a bountiful crop of spring wheat, but a decidedly short one of winter, the qualities good. In consequence of her exhausted stocks, and the demand from local millers on the new crop, prices at New York were for some time on too high a level to allow of extensive shipments, and the canals being frozen and declared officially closed on the 10th December, with two million bushels wheat ice-bound, it is not unlikely that prices there may take a sudden start previous to the opening of the navigation in April next. We have already received considerable supplies from thence, and we shall doubtless receive much larger quantities next summer and autumn. In Belgium and in the German States the produce to the acre was from 15 to 25 per cent. less than the average, and in the Dantzic districts and Upper Poland we hear of a deficiency of 50 per cent., and 25 per cent. is of most inferior quality. California, Australia, and Chili, in spite of the scarcity of shipping, have largely contributed to our wants, and as by last advices from the colonies, the next harvest, which is now about to be reaped, is favourably spoken of, we may expect continued supplies, until prices here have fallen 20s. per qr. Importations into the United Kingdom in the past year amounted to about 34,504,000 cwts. against 23,156,329 in 1866; of the 1,526,293 qrs. imported into London, we received 9 per cent. from America,  $1\frac{1}{3}$  Canada,  $31\frac{1}{3}$  German States, 38 Russia, and 7-16 France. The year opened with an imperial weekly average price of 60s. 2d., against 46s. 3d. in 1866, and the latest was 66s. 9d.; the highest was 70s. 5d. on 26th October, and the lowest 59s. 3d. on 9th March.

The annual aggregate average was about 64s. 3d. against 49s. 11d. in 1866, and 41s. 10d. in 1865. Our stock is heavy, and at the outports accumulating.

#### BARLEY.

In consequence of the relative high value of this grain the previous twelve months, and the unfavourable condition of the land in the autumn, and again in the early spring, for receiving the seed wheat, a more than usual breadth of barley was sown in England. The produce to the acre, and the weights per bushel, vary greatly, according to the county and situation of the farms, the May frost having materially injured some fields, while their next neighbours were left comparatively unhurt, and there is no doubt that had it not been for these few days of untoward weather the crop would have been one of the largest ever grown. Taking the extra breadth into account we consider the quantity to have been a full average, but the weight two per cent. under average. With the exception of a rather large proportion from Norfolk and Suffolk, nearly all samples are deficient in colour and form, but accounts represent all the barley to be full of vitality, and when made into malt to give a large and excellent extract. Good samples weigh 52lb. to 53lb., and a few choice up to 54lbs., but there is a great quantity of 50lb. and even 48lb. used for making into brown malt, which pulls down the total average weight. Scotland suffered more than ourselves from the effects of the weather. Her crops were from 15 to 20 per cent. under average, and the samples are mostly unripe, dark in colour, and unsuited to this market. The crops in France, Belgium, and Germany were all more or less under average, and very little was fine enough in quality to tempt our large pale ale brewers to become free purchasers. Denmark and Sweden secured about average quantities, but there is a harshness about the quality which would have prevented their use here for malting purposes, had not the unusually extensive native demand for this article as a substitute for rye kept

prices at too high a range to compete with our markets. In Russia and along the Danube the crops are estimated at about two-thirds under average, and if our information can be relied upon, very little will be left for exportation next spring; there is, however, just the possibility that growers have been induced to send forward their wheat to meet the current prices, rather than their barley. There can be no doubt the continued want of employment among the labouring classes, more especially in ship-building and railway and iron works, materially reduces the consumption of beer, and thereby keeps down the price of malt, and consequently of barley, which, from the scarcity of maize and other feeding descriptions of grain, would otherwise have been at a higher value. The total importations into the United Kingdom in the past year amounted to about 5,728,000 cwt., against 8,433,863 cwts. in 1866, the largest on record. Into London we received 358,360 qrs., of which Russia sent 9, France 8, Denmark 11, German States  $12\frac{1}{2}$ , Turkish dominions 16 per cent. 1867 opened with an imperial weekly average of 43s. 6d. against 32s. 9d. the previous year, and the latest was 41s. 2d. The highest was 45s. 9d. on 26th January, and the lowest 34s. 9d. on 13th July. The annual aggregate average was about 40s., against 37s. 5d. in 1866 and 29s 9d. in 1865.

## OATS.

In England an average breadth was sown, and the produce to the acre was good, but the weights are particularly various, although the crops were upon the whole well harvested. Some that were touched by frost in the blooming season are as light as 25 lb., many of the grains being plump to the eye, but empty of the kernel. In Yorkshire there was a good average quantity and quality. In Lincolnshire and Cambridgeshire an occasional sample is found 42 lb., but the average is not over 36 lb. In Kent the white vary from 28 lb. to 44 lb., the runs of black about 38 lb.; the average said to be about 36 lb. In the West of England there was a large bulk on the hills,



and the weight is from 39 to 40lb., and this district, which is generally supplied by Ireland, requires less than usual. Scotland had an average of land under this crop, but the yield to the acre and the weight to the bushel are decidedly short. The worst on eastern side and in Caithness, and the best in the early southern counties, where a few samples come of a fine colour, and weigh up to 42 lb. to 44 lb., while a large proportion is only 38 lb., and some down to 34 lb. Upon the whole, 25 per cent. loss in weight and measure. In Ireland there was again a diminished cultivation, equal to about 250,000 qrs., but the produce to the acre was a full average. There will, however, be an increased consumption of oatmeal in Ireland, in consequence of the high price of maize. The crops in Sweden and Denmark, which just before harvest were represented as abundant, are now described as certainly not over an average, and the quality is not very good. In Holland, Hanover, and Lower Baltic, the crops were about an average. Petersburg and Archangel accounts represent the crops at full average in quantity, but the weights rather light. Riga much smaller than last year. Odessa about average. The total importation into the United Kingdom was about 9,415,000 cwt., against 8,844,586 cwt. in 1868. Into London we received 2,274,567 qrs. (against 2,306,478 qrs. in 1866), of which Russia sent 43, Sweden, 40; Denmark,  $2\frac{1}{2}$ ; Holland, 21-3; German States,  $7\frac{3}{4}$ ; and America and Canada, 9 per cent. The year opened with an imperial weekly average of 24s. 2d. against 23s. 6d. the previous year, and the latest was 24s. 4d. The highest was 29s. 7d., on the 17th of August, the lowest 23s. 4d., on 19th January. The annual aggregate average was about 25s. 11d., against 24s. 7d. the previous year. We commenced the year with a moderate stock, and closed with a rather large one.

## BEANS AND PEAS.

Both crops suffered more than any other from the ill effects of the weather. The former was about two-thirds of a crop



in Essex and Kent, while in some of the northern counties the yield was better, and in others worse. Egyptian supplies have therefore come very timely to our aid. Mazagan and Sicily required what they grew, either for own use or for exportation to their near neighbours. The latter in Essex and Kent varied from one-half to two-thirds of an average, but as the cultivation of this crop is chiefly in the home counties, and the whole growth of the kingdom is but a small percentage of the consumption, prices are not much influenced by a good or bad harvest in this country, and America and Canada have thus the opportunity to send us all they can spare of their fine, but not over large, crops. The total importation of beans into the United Kingdom was about 1,983,000 cwts., against 1,324,173 cwt. in 1866; into London 81,151 qrs., against 63,898 qrs. in 1866. The importation of peas was about 1,580,000 cwts., against 1,211,835 cwts. in 1866; into London 108,746 qrs., against 62,844 in 1866. Stocks are small of beans, but particularly large of peas.

## MAIZE.

Importations as usual have been principally from America and the Black Sea, while Spain and Egypt have contributed but little. After most conflicting accounts as to the probable yield of the last crop in America, we think there can be no doubt that it was less than an average in quantity, and the condition of what has arrived at the seaboard has been complained of. The old crop was exhausted at time of the last harvest, and as yet the supplies of new sent forward to New York have been considerably less than at the corresponding period in 1866; stocks there are lighter than at this time last year, and one million bushels have been frozen up in the canals. The Russian districts supplying Odessa collected only about one-third average crops. Along the Danube the harvest was good in quantity and of fine quality; Spain, Portugal, South of France, and Africa had all small harvests. The importation into the United Kingdom was about

8,506,008 cwts., against 14,322,863 cwts. in 1866, the largest on record since 1847. In London we received 188,000 qrs. against 370,622 qrs. in 1866. Stocks everywhere are reduced to a minimum.

#### POTATOES.

Although this article of food is not dealt in by those connected with the grain trade, it is nevertheless so important an element of the food question that we cannot pass it over, more especially this year, and we would call attention to the following reliable accounts sent to us by one of the leading factors. "With reference to the potato crop of 1867, in the home counties, viz., Kent, Essex, Surrey, and Middlesex, the crops, like the weather of last summer, were very various, and an average crop was the exception, but I do not think there are as many left in those counties as will plant the land. In Lincolnshire and Yorkshire about two-thirds of an average crop, and quite one-third of that gone with blight, the quality much inferior to the average of years. In Scotland, with few exceptions, under half a crop, and the half of them blighted. I should say there is not above a quarter of the usual yield fit for market, very small, and quality worse than it has been since the year 1834. As to Ireland I cannot give an opinion, but from what I can learn they are a small crop, and quality very second-rate." The crops on the Continent were likewise small and much blighted in some districts.

#### FLOUR.

As was the case the previous year, millers again complain of the large proportion of bran to the quantity of flour obtained from every quarter of wheat, but the quality of the new flour is satisfactory. America and Petersburg have largely increased their supplies, while France has

lessened hers materially. In order to keep down the price of bread to the public the French Government ordered the bakers to sell bread at a lower price than it could by any possibility be made for, and the government will repay the bakers the difference in the price. The quality of the new American is much liked, and the Australian is of the highest class. The total importation into the United Kingdom was about 3,619,000 cwts., against 4,972,280, in 1866. In the first eleven month France gave us 586,224 cwts. against 3,354,594 in 1866; America and Canada, 3,398,109 cwts. against 484,232 in 1866. The quantity imported into London was about 725,885 cwts. against 503,470 cwts. in 1866, of which France sent 11 per cent.; America and Canada, 54; and Russia, 10. Stocks are moderate of sack flour, but very heavy of American barrels.—(*From the Circular of Messrs. Horne, Son, and Mac Innes.*)

## LINSEED.

Notwithstanding the numerous complaints as to business generally, our trade has no reason to find fault with the result of the year's operations, and although at the moment prospects are not very encouraging, we yet expect the end of this season will show a satisfactory result; while as regards the future, the reports as to supply are very favourable, and the long hoped for lower range of prices will be current, we trust, during the season 1868-69. The lowest quotation for seed for shipment was 59s. 6d. (in June), and the highest 67s. 6d. (in October). The demand has remained throughout the year somewhat in excess of the supply. Qualities of all sorts continue satisfactory. For next season large supplies are everywhere reported, and from the Black Sea about 120,000 qrs. have already been contracted for for spring and summer shipment at from 62s. to 60s. per qr., according to periods of delivery.

## FRUIT.

The past year has been uneventful in the dried fruit trade. Opening with a stock far below any that had existed since 1863, there was a good prospect of a continuance of the business that had steadily ruled during the autumn of 1866, but not until the last days of February and March were there any signs of vitality. The trade had by then worked off their old stocks, and an advance was established of 2s. on all sorts of currants, and 4s. to 6s. on Valencia raisins. In April and May the position was steadily maintained, and by the 1st of July the stocks were further reduced to a lower position than in former years, but sales were irregular and without animation until the end of August, when the new fruit appeared. The quality of currants failed to give satisfaction, and a rapid decline took place; while in Valencias a large trade was moving from the first day of arrivals up to the end of the season. The year closed with a drooping market, occasionally diversified by a few bold purchases in low currants for investment, and a retail trade in all raisins.

## CHEESE.

The cheese trade during the past twelve months, upon the whole, has been unsatisfactory. The year commenced with a comparatively small stock of English cheese. As spring set in a little better feeling was observable in the market, but as autumn approached no improvement was manifest, and a much smaller business was transacted than usual for the time of year. Really good American cheese sold as low as 48s. to 50s. At the various fairs held in October a good deal of cheese had to be taken back. At former rates there was a fair demand for American, but this article met with strong competition in the shape of good double cheese at 48s. to 52s. This month was probably the duller for

business that has been known for years past. At the end of the year the dullness which usually characterises the period was observable. The large quantities of English cheese interfered very much with the sale of American, even at the same prices, and the demand for Christmas trade was on a very small scale. The arrivals of American cheese during the year 1866 were 618,716 boxes, and in 1867, 935,512 boxes, showing an increase of 316,796 boxes.

#### WOOL.

At the close of 1866 attention was drawn to the remarkable steadiness which had distinguished the colonial wool trade throughout that year of financial disaster. The issue of the season just concluded does not afford the same grounds for congratulation. Production has made extraordinary progress. The importations from Australasia and the Cape present a total of 542,713 bales, against 455,589 bales in 1866, but in computing the extent of our supplies cognizance must be taken of the shipments from South America, which, although for the most part consigned to Continental ports, come into direct competition with the produce of our own colonies. The supply of these wools is increasing far rapidly than that from Australasia and the Cape, the arrivals whence have only just doubled in six years, while those from the River Plate have more than doubled in three, and at present represent a quantity equal to the entire growth of the Australian continent. With a rate of increase such as this a reduced range of value was, sooner or later, inevitable; but during the period of inflation which preceded the collapse of last year, the elasticity of the demand appeared unlimited; the annual increase passed into immediate consumption, and although there were occasional fluctuations, no considerable fall took place. At length, however, the anticipated check has actually occurred. A contracted home trade, consequent upon the financial crisis and the high price of wheat, the



existence of political distrust at home and abroad, and a curtailed export to America, both from Great Britain and the Continent, the result of an almost prohibitive tariff, have combined, with a growing production, to depress the value of colonial wool to a point lower than has been reached for many years past, and which represents a fall of 20 per cent. as compared with the close of 1866, and of 30 per cent. as compared with the beginning of the same year.

#### TIMBER.

In 1865 and 1866 we were overtrading in wood. The supply for seven years preceding 1860 had given an annual average of about  $2\frac{1}{2}$  millions of loads; for three following years it became 3,000,000; in 1863 and 1864 the average rose to  $3\frac{1}{2}$  millions, and this expansion sufficing for our increasing consumption, the greater imports of  $3\frac{3}{4}$  millions in 1865 and 1866 left a large unconsumed surplus. The importation of little more than 3,000,000 loads in 1867 takes us back five or six years for a parallel quantity; yet it has been enough for the demand of the building trade, and leaves ample stocks at the principal ports for consumption while importation is suspended. The wood of the north of Europe has never before this time been laid down so cheaply at the principal ports of the kingdom, especially on the east coast; but we fail to see the wonted elasticity of our trade, which, after previous times of difficulty, had recovered from the troubles of one year before the end of the next. While merchants lack confidence, the public have profited by the depression of prices. To meet the increased difficulty of dealing with our skilled labour, foreign enterprise now provides the greater part of the timber sawn into deals, battens, and, boards very nearly in the form and shape required for use, instead of continuing to send so much timber in the log for conversion here by our own workmen. By the introduction of our machines large quantities of flooring boards have been prepared in Russia, Norway, and Sweden, so well made

that they have become a regular importation in all parts of the country. So eager is this competition that an experimental trade has been commenced by the shipment of mouldings, and from Sweden of manufactured doors, well finished, and of the same patterns used by our builders. The colonial supplies, now contracted to one-third of our imports, have been chiefly and judiciously limited for several years to those descriptions of timber and other woods which are the peculiar growth of Canada and New Brunswick. The requirements of the northern provinces of the United States abstract a great portion of Canadian pine of the best sorts, and also draw from the upper lakes much wood which used to be carried to the Quebec market.

#### AGRICULTURAL IMPLEMENTS.

We are happy to report a great increase in the demand for agricultural implements, particularly for reaping and mowing-machines. This we attribute mainly to the necessity for machinery which the increasing deficiency of agricultural labourers creates, especially in all that relates to the securing of crops, and also to the improvements we have recently made by our new system of constructing these machines. Our sales at the late Smithfield Club show far exceeded those of any previous year, and we think that as the season advances the demand for such machinery will be still more largely increased.

The French commercial returns for 1867 have just been published. During the first eleven months of last year, the imports of goods into France exceeded by 355 millions those of the year before, and by 488 millions those of 1865; they amounted to a total of 2,900 millions. The increase upon cereals is 173 millions; on raw sugar, 1 million; on coffee, 4 millions; cattle, 43 millions; wool, 2 millions; silk, 3 millions; while, on the other hand, 86 millions less of cotton has been imported than in 1866. No great difference from the preceding year is perceived in the import of wood,

coal, and woollen textiles; but the exports are materially lower. Instead of 2,949 millions, as in 1866, they are only 2,729 millions in 1867. The diminution is of 74 millions on textiles of all kinds, 45 millions on wines, 12 millions on brandies, 21 millions on cattle, and 124 millions on cereals.

---

### GENERAL REVIEW OF THE CORN TRADE FOR THE YEAR 1867.

*January* commenced with very low stocks, foreign imports in 1866 being lower than the current demand. The value of wheat ranged, on the average of 150 tons, from 60s. 2d. to 62s. 3d. for the month; or white wheat ranged from 66s. to 68s.; red, 55s. to 65s. per qr. Notwithstanding the extreme severity of weather and the entire stoppage of the Thames for unloading, demand remained slow, and value almost unchanged. Barley rose from 43s. 6d. at the beginning to 45s. 9d. per qr. at the close of the month, and kept in fair demand. Oats through January did not alter 6d. per qr., 24s. 5d. being the top average.

*February*.—Value fell from 62s. 6d. for wheat to 59s. 11d., on the average, and sales were very slow, and the end of the month saw a second decline of 2s. on foreign. Price of English wheat, 64s.; red, 61s. Barley fell from 45s. 2d. to 43s. 4d. Oats continued level.

*March* rather raised the price of wheat, which from 59s. 8d. rose to 60s. 11d., but business was never brisk. The demand for barley fell off, and price declined from 42s. 4d. to 39s. 6d., and oats did not alter either way, to the extent of 1s. per qr. The influence of the unfavourable weather, which threatened greatly to injure the young corn, was very trifling.

*April* recovered the value of wheat from 61s. 2d. to 62s. 11d. Both English and foreign qualities showed the advance,

and it must be remembered that the bad harvest of 1866 had left most home-grown corn in very inferior condition: thus the above average was reduced. English white wheat, sound and fair, commanded 70s. per qr. for the first time in the year, whilst the best foreign white brought 72s. Barley kept at a few pence over 39s., whilst oats rose from 23s. 9d. 25s. 6d. in the course of the month. The weather was seasonable.

*May*, with good reason, on account of the fearful weather and sharp frosts, advanced wheat from 63s. 10d. to 65s. 3d., yet English wheat during the month lost and recovered value; foreign kept steady. The price of barley fell from 39s. 9d. to 37s. 10d. as the demand for malting purposes dwindled. Oats commanded 1s. advance, the top average being 27s.

*June* followed with fine, dry weather, and the value of wheat sank from 65s. 9d. to 64s. 10d. Both English and foreign lost this 1s. per qr. Barley went still lower from 37s. 9d. to 35s. On the contrary, oats rose from 26s. 10d. to 28s., and all heavy qualities became extremely scarce.

*July* saw an advance of 2s. to 3s. per qr. in the port markets, but from 64s. 11d. to 65s. 8d. in the country. Red wheat rose to 68s., and white 72s. to 75s. Barley remained stationary in value. Oats advanced again from 27s. 1d. to 28s. 3d.

*August* maintained rates with difficulty, and price at the close, 69s. 7d. from 68s. 4d., in the middle of the month, was very weak, the weather having been very fine. White wheat still made 68s. and red 65s. Barley, in very small demand, was, however, exceedingly scarce, and value rose from 35s. 3d. to 39s. 6d. Oats now mounted to their highest figures, from 27s. 6d. to 28s. 11d.

*September.*—Prices fluctuated at each market, but at the close of the month they had risen from 62s. 5d. to 64s. 1d. on the average, whilst all prime samples made 66s. for red, and 72s. for white. The harvest had been well got through in early districts, but the expectation of a deficiency of yield in England, and the certainty of a short crop in France

caused the reaction in value. Barley again advanced from 38s. 10d. to 40s. 6d.; oats fell from 27s. 6d. to 26s. 1d.

*October*, which began with wheat at 63s. 5d., advanced it to 70s. 5d., the top rates of the year being a dangerous rise of 7s. per quarter in about a fortnight; but this October rise having been telegraphed to all parts of the world, has greatly influenced the winter prospects by attracting large and timely supplies from California, America, and the Black Sea. The quotations at the highest were:—English white, 75s. to 80s.; red, 68s. to 72s.; Königsberg, 75s. to 80s.; Baltic red, 70s. to 72s.; Danish and Hamburg, 66s. to 70s.; Russian, also 66s. to 70s. Barley was lifted from 40s. 3d. to 42s. 9d. Oats fell from 27s. to 26s. All *new* samples of corn, from their fine condition, realised top prices.

*November* has been characterised by large imports and dull markets without much change in value (from 70s. to 68s. 5d.). Barley declined from 43s. 6d. to 40s. 5d. under very large sales. Oats dropped to 25s. 9d. from 26s. 4d.

*December* has had throughout but a very poor demand either for cargoes or at market. Sales on the month were about 1s. to 2s. reduced per qr. (from 68s. 1d. to 66s. 9d.) Imports continued large, but home supplies fell off, and the wheat districts on the East Coast required foreign corn. The month, therefore, closed with tight firmness, both in London, Liverpool, Paris, Marseilles, and America.



## APPENDIX II.

---

### TESTIMONIALS.

---

I.—*R. Carruthers, Esq., Proprietor and Publisher of the  
"Inverness Courier."*

January, 1848.

It will be observed, from an advertisement in another column, that Mr. Duncan G. F. Macdonald, son of the Rev. Dr. Macdonald, Ferrintosh, has intimated his intention of commencing business as an Engineer, Land and Drainage Surveyor, &c., in the county of Ross. Mr. Macdonald was highly respected while prosecuting his studies here, under Messrs. Maclean and Morrison, Civil Engineers, and is an amiable and accomplished young man. His talents and attention will command respect in his native country, and we cordially wish him success.

---

II.—*Donald Williamson, Esq., Banker, in Tain.*

As Factor for Sir Chas. Ross of Balnagown, I have had to employ Mr. D. G. F. Macdonald very extensively in surveying. I deem it my duty to bear the highest testimony to his professional ability and attainments. I have always found him prompt in attention to business, and most minutely accurate in all his plans and calculations. It gives me sincere pleasure to be able to say that, from personal

knowledge, I can give him my unqualified recommendation, both in his professional capacity and private character.

Tain, 30th Jan. 1850.

D. WILLIAMSON.

---

III.—*D. Monro, Esq., of Allan.*

Edinburgh, 55, Northumberland St.,  
31st Jan., 1850.

My dear Sir,

In reply to your favour of 28th, I have the greatest pleasure in bearing testimony to your qualifications as a Civil Engineer and Land Surveyor, from personal experience as well as from the opinion I have often heard expressed of you by those much better qualified to judge than I pretend to be. Wishing you every success,

I remain, my dear Sir,

Very truly yours,

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

D. MONRO.

---

IV.—*Keith W. Stewart Mackenzie, Esq., of Seaford.*

Castle Brahan, Feb. 4, 1850.

My dear Sir,

In reply to your letter of date 1st current, I beg to assure you with what pleasure I give any testimonial in your favour. Your character for ability as a professional man is not less than that for honesty of intention and rectitude of purpose; while on all hands I hear but one opinion as to the value of your surveys. Indeed I may vouch for that myself, as the survey of one of the estates

you made for me is one of the best and neatest of that kind I ever saw. Wishing you every success in your career, and adding a hope that, should I be of any service to you, I may be called on to afford it,

I am, my dear Sir,

Very truly yours,

KEITH W. STEWART MACKENZIE.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

---

V.—*Duncan Davidson, Esq., of Tulloch, Convener of the  
County of Ross.*

Tulloch Castle, 5th Feb. 1850.

My dear Sir,

I have much pleasure in stating that you executed plans and surveys of lands of mine which required much care and nicety, and that nothing could be more accurate than your measurements, nor could the plans be executed with greater taste or neatness.

I have seen various of your surveys, and they appear to me ably executed.

I can have no hesitation in saying that, to the best of my belief and observation, you are justly entitled to meet with encouragement.

I am, my dear Sir,

Yours very truly,

DUNCAN DAVIDSON.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

---

VI.—*Colonel Macpherson, Burgie House, Forres.*

Burgie House, Feb. 6th, 1850.

My dear Sir,

I beg to assure you that it gives me sincere pleasure to be able to say that I am convinced your upright and correct ideas in business, added to your professional skill, cannot fail to secure your success. This I can assert with, much confidence, having had an opportunity of judging from the work you have executed at Torridon, which was performed in a superior manner, and to my entire satisfaction. Your system of draining works admirably.

I am, my dear Sir,

Yours very sincerely,

D. MACPHERSON.

D. G. F. Macdonald, Esq.,  
Civil and Drainage Engineer, Dingwall.

---

VII.—*George Cameron, Esq., Sheriff-Substitute of Ross, &c.*

Dingwall, 6th Feb., 1850.

My dear Sir,

I have sincere pleasure in saying that, having made remits to you in cases before me judicially, you executed them in a manner perfectly satisfactory to the parties and to me; and that, from my opportunities of observation since you came to reside in this town, I believe you to be of an amiable and obliging disposition, and your conduct as a private member of society to correspond with your professional respectability. With my best wishes for your success in life,

I am, my dear Sir,

Yours faithfully,

GEO. CAMERON.

Duncan G. F. Macdonald, Esq., C.E.,  
Dingwall.

VIII.—*Hugh Innes Cameron, Esq., Hyde Park Gate,  
Kensington Gore.*

9th February, 1850.

My dear Sir,

I have to-day your note of the 6th inst., and in reply I have much pleasure in stating that the survey and plans made by you last year of the Marches twixt the Lochalsh and Inverinate estates on the West Coast of Ross-shire, adjusted under a reference to me, were executed to my perfect satisfaction.

I regret that I have not since had other and larger opportunities of availing myself of your professional services.

Yours very truly,

HUGH INNES CAMERON.

D. G. F. Macdonald, Esq.  
Dingwall.

---

IX.—*Sir Evan Mackenzie, of Kilcoy, Bart.*

Belmaduthy, 11th Feb., 1850.

My dear Sir,

I have much pleasure in conveying to you my perfect satisfaction with the professional ability and skill which you have displayed in connection with the work undertaken by you on the Kilcoy property, and I hope that you may continue to find them duly appreciated.

I am, my dear Sir,

Yours faithfully,

EVAN MACKENZIE.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

---



X.—*John Mackenzie, Esq.*

Pitglassey, 12th February, 1850.

My dear Sir,

From the frequent opportunities which I have had of examining plans and reports prepared by you—from the accuracy and ability you displayed in cases in which I myself had occasion to employ you—and from my acquaintance with you since you came to reside in this quarter, I feel warranted in recommending you, with every confidence, to any party who may require your professional services, not doubting that the work entrusted to you will always be executed with credit to yourself and with satisfaction to your employers.

Your having settled in Dingwall I deem no small boon to this part of the country.

I am, my dear Sir,

Yours very sincerely,

JOHN MACKENZIE.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

XI.—*Robert Falconer, Esq.*

Dingwall, 14th Feb., 1850.

My dear Sir,

I feel very great pleasure in stating that, long before I had any personal experience of your qualifications, I had heard you spoken of in very high terms indeed, as a most expert and skilful Land Surveyor, by those who were well qualified to judge, and had had opportunities afforded them.

On the strength of this reputation, you were recently requested by me to execute a survey and plan for Sir Evan

Mackenzie, intended to be used in a question depending in the Court of Session with one of his tenants; and I can very truly say, that the business was performed in a manner highly creditable by you and satisfactorily to Sir Evan and myself. So much so that, if ever I have anything of the sort to get done again, I should very much regret if any accident prevented my securing your valuable services.

With best wishes, believe me,

Yours very truly,

ROBERT FALCONER.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

---

XII.—*John Binning, Esq., Factor for Duncan  
Davidson, Esq., of Tulloch.*

Knockbain, Dingwall, 22nd Feb., 1850.

My dear Sir,

In answer to your favour of the 18th instant, I have much pleasure in stating, that since I had the pleasure of your acquaintance, in private, I found you the gentleman; and in your public capacity, from personal experience, I can testify, so far as I am able to judge, that you are master of your profession; the measurements and plans which you have executed for me bearing testimony to my expressions in this respect.

Wishing you every success in your journey through life,

I remain,

Yours very truly,

JOHN BINNING.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

XIII.—*Captain (now Rear Admiral) Russell Elliott, R.N.,  
Westmoreland.*

Appleby Castle, Feb. 23, 1850.

During the years 1848 and 1849, I had frequent occasion, as Inspector-General of Highland Destitution, to employ the professional services of Mr. D. G. F. Macdonald in the inspection and valuation of Roads, Bridges, and otherwise as a Civil Engineer. On these occasions he has been associated with me for ten days at a time, and it affords me pleasure to bear an unreserved testimony to the *complete, careful, active, able* and *satisfactory* performance of his professional duties; and, in no less equal degree, to the steady, gentleman-like deportment he always evinced.

My opinion of Mr. Macdonald's character for steadiness and good business habits, is very highly favourable to him.

R. ELLIOTT, Capt., R.N.,  
Late Inspector-General of Highland Destitution.

---

XIV.—*Duncan Forbes, Esq., of Leanach.*

Culloden Castle, Feb. 28th, 1850.

My dear Sir,

I have now had the pleasure of your acquaintance for many years, and can speak of your merits with great confidence. You have been trained under able and experienced Engineers, and have latterly prosecuted the business of your profession with great energy and success throughout the North. On all occasions on which my brother and myself have been fortunate enough to secure your services, you have given us the most entire satisfaction.

Your drainage reports, plans, and measurements of the recent extensive improvements on the Barony of Ferrintosh have been always marked by accuracy and good taste.

Your rising reputation promises well for the future, and I can only add that I wish you most cordially every success.

I remain, my dear Sir,

Yours very sincerely,

DUNCAN FORBES.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

---

XV.—*J. Mackenzie, Esq., M.D., Eileanach, Inverness.*

Eileanach, Inverness, Feb. 25, 1850.

I have been acquainted with Mr. D. G. F. Macdonald, Civil Engineer, Dingwall, from his childhood, and have had much pleasure in observing his having grown up to be a useful and valued member of society, both in public and private estimation.

I know that he has had an excellent practical education, and, having seen plans executed by him, and having employed him myself, I have no doubt he will give perfect satisfaction to any one who may feel inclined to employ him professionally.

J. MACKENZIE, M.D.,

Factor for Gairloch, Coul, and Redcastle.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

---

XVI.—*John Munro, Esq., Factor on the Estate of Fowlis.*

Fowlis, Evanton, N.B., 26th Feb., 1850.

I have employed Mr. Duncan George Forbes Macdonald, Civil Engineer in Dingwall, to make a survey, plan, and re-

port of the Mains of Fowlis, extending to nearly 1,500 acres; and it affords me the greatest pleasure to bear testimony to his professional abilities, and to his accurate, active, industrious, and sober habits.

Mr. Macdonald has been known to me almost from infancy, and I have no hesitation in affirming that his disposition is very amiable and obliging, and his deportment exemplary and respectful.

JNO. MUNRO.

Factor on the Estate of Fowlis.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

---

XVII.—*William F. Skene, Esq., Secretary for the Highland  
Destitution Committee, Edinburgh.*

Highland Destitution  
Committee Rooms, 10, Hanover Street,  
Edinburgh, 27th Feb., 1850.

My dear Sir,

I was duly favoured with yours of the 6th current, which I have now laid before the Committee, and I am instructed by them to state to you in reply that, having been employed by them in the years 1848 and 1849, to inspect the Roads constructed in Wester Ross under co-operative arrangements between the Committee and the proprietors, and to report upon the value of the work, and the mode in which it had been executed, you have fulfilled your task to the entire satisfaction of the Committee.

I have much pleasure in adding that, in selecting a person for this purpose, the Committee had to look for one possessing both judgment and discretion, as well as the necessary professional skill; and I do not think it possible



for any one to have executed his duty in all these respects in a more satisfactory manner than you have done.

I am, my dear Sir,

Yours faithfully,

WILLIAM F. SKENE, *Secretary.*

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

---

XVIII.—*Arthur Forbes, Esq., of Culloden.*

Culloden Castle, March 2nd, 1850.

My dear Sir,

I have much pleasure in complying with your request. In common with many of your friends in this quarter, I have marked your career with great interest since you commenced business in Ross-shire. Your energy of character, and your attention to business, require no commendation of mine. The growing appreciation of your talents throughout the northern counties is precisely what my lengthened acquaintance with you had prepared me to expect. Altogether, I have formed a very high opinion of your merits, both personal and professional, and I should deem it a privilege to be instrumental in any way in extending the sphere of your usefulness.

Believe me, my dear Sir,

Yours very sincerely,

ARTHUR FORBES.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

---

XIX.—*George Mackenzie, Esq.*

Dingwall, 5th March, 1850.

My dear Sir,

It affords me very great pleasure to bear my humble testimony to the high estimation in which your personal and professional character are deservedly held in this district of country, and to have the opportunity of expressing my sincere wishes for all the success to which your merits so well entitle you.

I am always

Yours very truly,

G. MACKENZIE.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

XX.—*Hugh Mackenzie, Esq., of Dundonnell.*

Dundonnell House, March 5th, 1850.

My dear Macdonald,

I contemplate a survey of an extensive tract of hill ground, which I am desirous of having made with accuracy; and I am satisfied, from the tact and knowledge you displayed in estimating the value of, and detecting the differences in, the road now making in Little Lochbroom, under the auspices of the Destitution Board in Edinburgh (for whom you act), and carried on under my immediate superintendence, that I could not procure the professional services of any individual more qualified to give entire satisfaction than yourself.

I have it also in view to embank some land from the sea, for which I shall require a plan and specification; and from the artistical accuracy and masterly design exhibited in your other plans, I need not add that I am satisfied you will do equal justice to those you may undertake for me.

I do not hesitate for a moment to declare that this county never stood more in need than it did before you came to reside in it, of a Civil Engineer, possessing, as you do, with *rectitude of moral character, a perfect knowledge of your profession.*

Believe me,

My dear Macdonald,

Yours very sincerely,

HU. MACKENZIE.

D. G. F. Macdonald, Esq., C.E.,  
Dingwall.

---

XXI.—*Sir James J. R. Mackenzie, of Scatwell, Baronet,  
D.L., J.P., &c., &c.*

Travellers' Club, Pall Mall, London,  
September 17th, 1861.

My dear Sir,

I have great pleasure in stating that I consider you in all respects highly qualified for the position of Land Agent, or any other appointment connected with landed property.

I therefore feel that I am fully warranted in recommending you to any one who may require your services.

I am, yours most faithfully,

JAMES R. J. MACKENZIE,

Of Scatwell, Baronet.

D. G. F. Macdonald, Esq., C.E.,  
Land Agent, &c., &c.,  
18, Parliament Street, Westminster.

---

XXII.—*Henry Dunning Macleod, Esq., D.L., J.P., &c., &c.*

Oxford and Cambridge University Club,  
September 18th, 1861.

My dear Sir,

I have much pleasure in stating that I believe you are in every respect qualified to discharge the duties of Land Agent with credit to yourself and perfect satisfaction to any nobleman or gentleman who may feel inclined to employ your services.

I may moreover add, that your reputation as an agriculturist is of no common order; and that my opinion of your business habits and energy of character is very highly favourable to you.

With my best wishes for your success,

I am, yours very truly,

H. D. MACLEOD.

D. G. F. Macdonald, Esq., C.E.,

Land Agent, &c., &c.,

18, Parliament Street, Westminster, S.W.

---

XXIII.—*John A. L. Barnard, Esq., late of the  
Bank of England.*

London, September 19th, 1861.

My dear Sir,

Learning by your letter just received that you are seeking for an appointment as Land Agent, it gives me peculiar pleasure to recommend you to the notice of any nobleman or gentleman who may require your services in that capacity; because I know you to possess more than ordinary qualifications for the position of Land Agent, or for any situation connected with landed estates.

Whilst I can hardly imagine that a person of your pro-

fessional abilities, experience, and thorough knowledge of agriculture, with your great energy of character and acknowledged worth, can have any difficulty in obtaining an appointment such as you desire, yet I think that you should consider well before you relinquish a profession in which you have grown to be a useful and valued member of society for the more uncertain position of Land Steward.

However, whatever your determination may be, it will at all times afford me much real pleasure to be instrumental in securing to you that success in life which your merits so well entitle you to.

I remain,

My dear Sir,

Yours very faithfully,

JOHN A. L. BARNARD.

G. D. F. Macdonald, Esq., C.E.,

Estate Agent, &c., &c.,

18, Parliament Street, Westminster, S.W.

---

XXIV.—*Alexander Mackenzie, Esq., of Millbank,  
Commissioner of Supply, &c.*

Dingwall, N.B., Sept. 27th, 1861.

My dear Sir,

I have much pleasure in complying with your request, having marked your career with great interest for many years.

Your indomitable energy of character, professional abilities, and thorough practical knowledge of agriculture, together with your solid judgment and discretion, fit you *eminently*, in my opinion, for the position of Land Agent, or any situation whatever connected with landed property.

I know that you have had large and varied experience in directing the improvements and general management of landed estates, and that you have farmed for several years



on your own account ; thus acquiring that practical knowledge of agriculture, and of rural affairs in general, so essential to fitting a person for the charge of land, *on any scale*.

I can only add, that I most cordially wish you every success, and that I feel assured you will give every satisfaction to any nobleman or gentleman who may feel inclined to trust your character and services.

Believe me to remain always,

My dear Sir,

Yours very sincerely,

A. MACKENZIE.

D. G. F. Macdonald, Esq., C.E.,

Land Agent, &c., &c.

18, Parliament Street, London, S.W.

---

XXV.—*R. Maclellan, Esq.*

3, King Street, Liverpool,

Oct. 4th, 1861.

My dear Sir,

In reply to your letter of the 3rd instant, I beg to state that it is consistent with my knowledge that you have had an excellent practical education as an Engineer, Surveyor, and Agriculturist ; and I consider you in all respects fully qualified for the position of Land Agent or any situation connected with landed estates, where a thorough acquaintance with the principles and practices of good tillage, energy of character, and sterling worth are requisite.

I may add, that should reference be made to me I shall have much pleasure in replying to any inquiries respecting your position, both personal and professional.

I am, my dear Sir,

Yours very faithfully,

R. MACLELLAN.

D. G. F. Macdonald, Esq., C.E.,

18, Parliament Street, Westminster, S.W.

XXVI.—*George Bain, Esq., Parliamentary Agent, &c.*

18, Parliament Street, S.W.,  
(Or the Army and Navy Club),  
Oct. 6th, 1861.

My dear Sir,

I may state that I have known you almost from your childhood, and it affords me great pleasure to bear an unreserved testimony to your energy of character, professional abilities, and eminent qualifications for the position of Land Agent or Land Commissioners.

You have had such an excellent practical education, and so large an experience in estate business generally, that I should think you can have no difficulty in obtaining an appointment such as you desire. I may, moreover, add that I have formed a high opinion of your attainments, character, judgment, and discretion, and I have no doubt you will give perfect satisfaction to any nobleman or gentleman who may feel disposed to avail himself of your services, either as Land Steward or professionally.

Wishing you, most cordially, every success,

I remain,

Yours very sincerely,

GEO. BAIN.

D. G. F. Macdonald, Esq., C.E.,  
18, Parliament Street, S.W.

---

XXVII.—*H. I. Cameron, Esq., D.L., J.P., &c., &c.*

London, 7th October, 1861.

My dear Sir,

I shall be truly glad to learn that you have obtained the appointment of a Land Agent, or Estate Factor, with duties sufficiently extensive and important to employ, adequately, your time, thoughts, and energies.

From the profession in which you were so carefully trained in youth and the avocations in which you were for years engaged since, in Scotland and in England, in surveying, planning, improving, and valuing land, as well as in the actual operations of agriculture, you could not fail to acquire a competent knowledge of the principles which should regulate these, and of the best methods of giving effect to them practically, for the common advantage of both landlord and tenant, whose interests and well-being, indeed, are identical; and the numerous testimonials you have from the owners and agents of great estates, north and south, by whom you have been employed,—from magistrates, professional men, and others, who were your neighbours, friends, or acquaintances, and some of whom knew you from 'boyhood,—and from the instructive essays on agricultural subjects which have been occasionally published by you,—there is, I think, abundant evidence of your fitness for the suitable discharge of the duties of such an appointment.

Undoubtedly, your education and profession, your experience, habits, and tastes, all point at this as being for you the most natural permanent occupation; and as it is that of which you are fondest (a matter of not less moment to those for whom you may act than of comfort to yourself in the employment), and as I am, from a long personal and extensive experience of the qualifications requisite for such work, satisfied, by my knowledge of you, that you possess them, intellectually and physically, I have no hesitation in adding, that your services in that capacity might be made eminently useful to landlord, tenant, and labourer.

Sincerely wishing that they may be so on a large scale, and be amply remunerative to the employer and employed,

I remain,

Yours very truly,

H. I. CAMERON.

D. G. F. Macdonald, Esq., C.E.,  
18, Parliament Street, S.W.

XXVIII.—*Edmund Halswell, Esq., D.L., J.P. for Middlesex, &c., &c., late One of Her Majesty's Colonial Judges.*

26, Kensington Gate, Hyde Park, W.  
(or, the Athenæum Club),  
October 9th, 1861.

My dear Sir,

From my acquaintance with you since you came to reside in London, and from what I have heard expressed of you by those who were well qualified to judge, I have no hesitation in recommending you to the situation of Land Agent or Commissioner to any nobleman or landowner who may require such services.

The very favourable opinions of the press on your agricultural work should go far, I think, to render more testimony, as to your knowledge of agriculture and experience in rural affairs, unnecessary.

Wishing you every success, and hoping that you may long continue to find your professional attainments duly appreciated,

I remain, my dear Sir,

Yours very truly,

EDMUND HALSWELL.

D. G. F. Macdonald, C.E.,

Land Agent, &c.,

18, Parliament Street, S.W.

XXIX.—*G. F. Duncombe, Esq., of the South Kensington Museum.*

South Kensington, London, W.,  
October 8th, 1861.

My dear Sir,

It is now many years since I first had the pleasure of your acquaintance, and I need hardly assure you how

happy I shall be to learn that you have obtained an appointment of Land Steward, on a scale sufficiently extensive to employ your time and energies.

Considering the long and careful training you have had in the various departments of estate business, and the reputation you have acquired as a practical and scientific agriculturist, I hardly think you will meet with much difficulty in obtaining a situation as Land Factor, for which you are so eminently qualified.

Sincerely wishing that your professional attainments may meet with the encouragement they so well merit, believe me always,

Yours very faithfully,

G. F. DUNCOMBE.

D. G. F. Macdonald, Esq., C.E.,  
18, Parliament Street, S.W.

---

XXX.—*G. Minto Elliot, Esq., &c., &c.*

63, St. James's Street,  
London, 11th October, 1861.

I have known Mr. D. G. F. Macdonald, Civil Engineer, Land Agent and Surveyor, of 18, Parliament Street, Westminster, for the last ten years. He is in my estimation honourable, trustworthy, and energetic, and possessed of abilities of a superior order. He has a thorough knowledge of his profession and of town and country business, which qualify him peculiarly, in my opinion, for discerning the characteristics, peculiarities, and special exigences and excellences of different farms and tenants, and for the management of landed estates of any extent. I feel warranted in saying that I believe he will give perfect satisfaction to any nobleman or gentleman who may feel inclined to entrust landed property to his care and supervision.

G. MINTO ELLIOT.



XXXI.—*William Copeland Redmond Judd, Esq., Barrister-at-Law, D.L., J.P., &c., Major, Bedford Light Infantry.*

Sussex Terrace, Hyde Park,  
October 14th, 1861.

My dear Sir,

In compliance with your desire that I should write to you respecting your being a candidate for an appointment of Land Steward or Estate Agent, I beg to state that it gives me much pleasure to be able to recommend you to any land-owner who may require such services, believing that you are fully qualified for the suitable discharge of the duties of such an appointment.

Believe me,

Yours very truly,  
W. C. R. JUDD.

D. G. F. Macdonald, Esq., C.E.,  
18, Parliament Street, S.W.

---

XXXII.—*Edward Frederick Leeks, Esq., F.L.S., Secretary to the Royal Asylum of the St. Ann's Society, and Manager of the City of London Life Assurance Company.*

2, Walbrook, London, E.C.,  
(or, Warwick Square, Belgravia),  
October 16th, 1861.

My dear Sir,

In reply to your letter of the 14th instant, I beg to assure you that it gives me much pleasure to recommend you to the appointment of Land Agent; and I may add that I feel confident, from the high reputation you bear as an honourable and energetic man of business—as an Engineer, Surveyor, and Agriculturist,—you will do ample justice to

whatever interest may be confided to you, whether as a Land Agent, or in any other capacity.

I remain, with best wishes,

Yours faithfully,

EDW. FRED. LEEKS.

D. G. F. Macdonald, Esq., C.E.,

Land & Estate Agent, &c.,

18, Parliament Street, S.W.

XXXIII.—*N. McLean, Esq., C.E., Land Agent and Surveyor, Commissioner for the Right Hon. Edward Ellice, M.P., Factor for Cantrary and for Kilvaroch, &c., &c*

Inverness, N.B., Oct. 16th, 1861.

I hereby certify that Mr. D. G. F. Macdonald, C.E., and Estate Agent, of No. 18, Parliament Street, Westminster, served his time in my office here some fifteen years ago, when a very young man, and that during that time he invariably conducted himself much to my satisfaction by his steady perseverance—joined to considerable natural talent—in acquiring a competent knowledge of my professional business as a Land Agent and Surveyor; and, although I have had but little personal opportunity of knowing much of his career since he left me, I nevertheless have good reason to believe that he would prove an efficient and successful manager of landed property of a large extent.

N. McLEAN.

XXXIV.—*H. Empson, Esq., Solicitor, &c. &c.*

Hyde Park Gardens,

October 6th, 1861.

Dear Sir,

It affords me very great pleasure to bear testimony to the high estimation which your personal and professional

character and attainments are held amongst a large circle of friends and acquaintances, and to have an opportunity of expressing my belief that you possess in a pre-eminent degree the qualifications requisite for the proper discharge of the various duties of a Land Agent.

The excellent education you have had, and the profession you have practised for so many years, together with the scientific and practical knowledge of agriculture you have acquired in the operations of rural affairs, highly fit you, in my opinion, for any office or situation connected with landed estates, however extensive and important.

Altogether, I believe you to possess qualities, abilities, and knowledge which ought to secure for you a very prosperous career; and, wishing you all the success which your merits so well entitle you,

I remain, dear Sir,

Yours faithfully

H. EMPSON.

D. G. F. Macdonald, Esq., C.E.,  
18, Parliament Street, S.W.

---

XXXV.—*Martin H. Colnaghi, Esq., &c. &c.*

Charlwood Street West, Belgravia,  
October 17, 1861.

My dear Sir,

From the avocations in which you have been for years engaged as Civil Engineer, Land and Drainage Surveyor, Land Valuer, and Agriculturist, and your having been brought much in contact with the owners and occupiers of the soil, and with country business generally, you could not have failed in acquiring a complete knowledge of what is essential for the proper management of an extensive estate.

I can therefore recommend you with every confidence to the post of Land Agent, because I believe you to be fully conversant with the real resources of estates, and the true interests of proprietor and tenants.

Sincerely wishing you success, believe me,

Yours faithfully,

MARTIN H. COLNAGHI.

D. G. F. Macdonald, Esq., C.E.,  
18, Parliament Street.

---

XXXVI.—*H. Morrison, Esq., C.E., Land Agent & Surveyor,  
Engineer to the Inverness Harbour Commissioners, &c., &c.*

Inverness, N.B., October 16th, 1861.

My dear Sir,

I should be glad to comply with the request in your letter of the 12th instant, if I could add anything to the certificate which I gave you when you completed your engagement with me in 1847 (which was a very favourable one), but, as you are aware, I have not had opportunities of knowing much of your avocations since, to enable me to do so. I fully concur, however, in what is said about your qualifications in the certificates you have received from gentlemen who have had more recent opportunities of knowing your business habits and professional acquirements, and I have no doubt, therefore, that, with the knowledge which you must now possess of agriculture, and of surveying, improving, and valuing land, and of general engineering, you are highly qualified for the office of Land Agent or Estate Factor on any scale.

Wishing you every success,

I remain, my dear Sir,

Yours very truly,

H. MORRISON.

D. G. F. Macdonald, Esq., C.E.,  
18, Parliament Street.

XXXVII.—*H. Thomas Cameron, Esq., Barrister-at-Law,  
J.P., &c., &c.*

London, October 19th, 1861.

It affords me pleasure to testify that Mr. Macdonald, C.E., Surveyor and Land Agent, whom I have known intimately for many years, is, in my judgment, peculiarly well fitted to discharge the duties of a Land Steward. His experience professionally for others, and for himself as a farmer, together with the able and practical treatises which have issued from his pen, prominently evidence his capacity for any appointment connected with the improvement or management of landed property.

H. THOMAS CAMERON.

---

XXXVIII.—*J. Mackenzie, Esq., of Eileanach, M.D., D.L.,  
J.P., &c., Factor for Colonel Hugh Duncan Baillie, Lord  
Lieutenant of Ross-shire.*

Eileanach, Inverness, N.B.,  
October 25th, 1861.

My dear Sir,

I shall be glad to hear of your succeeding in your wish to get the management of an estate, and have no doubt your employer will at once see that you thoroughly understand the duties of such an office, and be thankful for having become connected with you.

Believe me, yours sincerely,

J. MACKENZIE.

D. G. F. Macdonald, Esq., C.E.,  
Parliament Street, London.

---



XXXIX.—*William Digby Seymour, Esq., Q.C., M.P.*

The Temple, London, E.C.,  
Oct. 26th, 1861.

My dear Sir,

I have much pleasure in recommending you to the situation of Land Agent, believing that the avocations in which you have been for years engaged—as a Civil Engineer, Land and Drainage Surveyor, Valuer, and Agriculturist,—fit you for the discharge of the duties of such an appointment; or indeed, I may say, for any office or situation connected with the scientific as well as practical management of landed property.

I ought to add that, since I have had the pleasure of personally knowing you, I have formed a very favourable opinion of your merits, nor has that opinion been the less my own because I have found that it is shared by others better qualified to judge of your professional ability and private worth.

I wish you every success.

Yours faithfully,

WM. DIGBY SEYMOUR.

D. G. F. Macdonald, Esq., C.E.,  
Land & Estate Agent, &c.,  
18, Parliament Street, Westminster, S.W.

---

## PRESENTATION OF TESTIMONIAL TO

D. G. F. MACDONALD, Esq., C.E.

THE English Committee entertained Mr. Macdonald at a dinner at the London Tavern, and presented him with a

valuable testimonial, previous to his departure to British Columbia on Government survey duty.

The chair was taken by the descendant of the illustrious Sir John Barnard, John A. L. Barnard, Esq., of the Bank of England, who, having disposed of the usual loyal toasts, said : We have met to perform one of the most gratifying and graceful acts that men have the opportunity of being engaged in : we have met to pay homage to honour and integrity, to offer respect to talents properly cultivated and usefully employed, to show our estimate of amiable conduct and steady friendship. We have met, gentlemen, not only to express our recognition of those qualities in our friend, Mr. Macdonald—(long-continued cheering)—but to exhibit our appreciation of them, by offering to his acceptance, as the representatives and on behalf of a large number of his friends, tokens of regard—(cheers)—tokens, gentlemen, which he will bear with him to British Columbia—gifts which I venture to hope will be valuable to him in his professional occupations—a remembrance which I am sure will keep ever in his mind that, though thousands of miles divide us, and the waves of the broad Atlantic roll in their magnificence between us, there are hearts left behind that beat in harmony with his—that will sympathise with his exertions, and that will rejoice in his success. (Much cheering.) You all know Mr. Macdonald so well that I need hardly occupy your time with many observations as to his character, but I should do him, I should do you, and certainly I should do myself, great injustice if I did not indulge in a few words. You know that he possesses a happy temperament (cheers), a solid judgment (cheers), great mental power, and untiring energy. (Much cheering.) His natural endowments had all the advantage of the care, the love, and the instructions of his excellent, pious, and venerable father, the Rev. Dr. Macdonald, of Ferringtosh, emphatically called “The Apostle of the North.” (Great applause.) He sowed the seed, and the labour was not in vain. At one-and-twenty years of age our friend was called to the commission of the

peace for his native county; even before that he had been appointed to the important and honourable office of Engineer to the Highland Destitution Board (cheers); since then, both in Scotland and England, large and varied business has been committed to his charge. In England alone he has planned and superintended the drainage and improvement of lands which has involved an outlay of £580,000. (Cheers.) Of the skill and ability with which these works have been executed we have ample evidence. (Cheers.) Witness the reports to Parliament from the Highland Destitution Committee, and the gratifying testimony of their excellent Secretary Skene; bear witness the many testimonials that have showered upon him from both sides of the Border. I hold in my hand some from the most influential men of the North, and most able judges, all testifying to the same fact. (Much cheering.) Besides this, we have his published evidence on railway matters, evidencing his thorough knowledge of his profession, and of the sciences collaterally connected with it. (Cheers.) We have also his work on agricultural improvements, which rapidly reached new editions. (Cheers.) And I venture with great confidence to predict that the same talents, the same attainments, the same energy, will enable him to win and occupy a high position, in the new land whither he is bound; and of this I am quite certain, that though—

'Tis not in mortals to command success,  
He will do more, companions: he'll deserve it!"

(Long-continued cheering.) My dear Macdonald, I now have the very great pleasure (as the humble mouth-piece of this long roll of names) of presenting to you this magazine of drawing and mathematical instruments, this theodolite, and this level, amounting in value to £240. Many of the subscribers being Freemasons, and yourself, my worthy brother, a Past Master in the craft, we have placed our masonic emblems over the inscription, which is as follows :—

PRESENTED TO

DUNCAN GEORGE FORBES MACDONALD, Esq., C.E.,

BY A FEW FRIENDS AND MASONIC BRETHREN,  
IN TESTIMONY OF THEIR REGARD AND ESTEEM, AND THEIR  
APPRECIATION OF HIS AMIABLE QUALITIES  
AND PROFESSIONAL ABILITIES.

LONDON: 1858.

I need not say, my dear friend, that I am convinced you will receive this gift as an evidence of the sense entertained by your friends, not only of your abilities, but of your worth as a man, a friend, and a gentleman; and you will believe with what sincere affection and pride I have endeavoured to perform this anxious but very grateful duty. It now only remains for me to place in your hands these letters; they are from warm and attached friends, and you will peruse them with pleasure again and again. I give you also this roll, containing the list of subscribers; it will be an incentive to your exertions, and often recall this happy hour. And I pray the Great Architect of the Universe who has hitherto sustained you, that he will, in his mercy, watch over, guide and guard you. (Great applause.)—(*Extract from Press Report of 6th January, 1859.*)

---





OPINIONS OF THE PRESS.

---

WORKS BY D. G. F. MACDONALD.

---

NINTH EDITION.

Patronised by Her Majesty the Queen.

# HINTS ON FARMING AND ESTATE MANAGEMENT,

BY

D. G. F. MACDONALD, C.E.,

(F.G.S., F.R.G.S., M.R.S.L., F.A.S.L., P.M., J.P., &c.)

Drainage Engineer and Inspector of Improvements executed under the control of the Inclosure Commissioners for England and Wales; Engineer-in-Chief to the Inspector-General of Highland Destitution, and Valuer of Roads, Bridges, and Public Works to the Scottish Board; Contractor for Agricultural Improvements, Farm Roads, Tramways and Railroads; Member of the Royal Agricultural Society of England; Member of the Highland Agricultural Society of Scotland; late of the Government Survey Staff of British Columbia, and of the International Boundary Line of North America; Author of "What the Farmers may do with the Land," "The Paris Exhibition," "Decimal Coinage," "British Columbia and Vancouver's Island," &c.

---

TO BE HAD OF ALL RESPECTABLE BOOKSELLERS.

---

PUBLISHERS:

LONGMAN, GREEN, LONGMAN, ROBERTS, & GREEN.

---

"A very truthful, interesting, and comprehensive view of Agriculture and its requirements."—*Alderman Mechi*.

"This is a new *edition* of a work which has done good service in stimulating the tenant-farmer to improve his condition by obtaining a more abundant increase from the land. There is a practical character about the hints and suggestions, which cannot fail to make the book useful to the class for whose benefit it has been written."—*Observer*.

"There is really a great deal of information on nearly every topic connected with farming. The subjects are not introduced in any regular order, but seem to arise according to the occasion. The information is conveyed too, in an agreeable manner, and recommends itself by the vein of common sense running through the whole. The author advances nothing upon mere theory, and evidently shows that he thoroughly understands the subject he treats of. The work is one, in fact, which will recommend itself to every one connected with farming from its own intrinsic merits."—*The Field*.

"His remarks are entitled to the highest respect from our agricultural friends, who, we doubt not, will profit from a perusal of this able, interesting, and important volume."—*Yorkshire Gazette*.

"His name is quite sufficient to guarantee that the work is eminently practical and scientific."—*Free Press*.

"It is a valuable addition to our agricultural knowledge, and we have no doubt it will have a large circulation in Ireland."—*Kilkenny Journal*.

"We can recommend Mr. Macdonald's treatise to all interested in agriculture or entrusted with the management of landed property."—*Kent Herald*.

"The author of this remarkably useful and candid book is not only a civil engineer, but a practical farmer and land agent. He is evidently thoroughly honest, and minds no more cutting down an antiquated prejudice than he would an overgrown thistle or dock. He is not a mere theorist, but a practical man. Hence the great value of the work. We would recommend every farmer to get this most valuable work for himself."—*North Wales Chronicle*.

"Mr. Macdonald is an author of acknowledged ability, and he has fully maintained the character throughout his hints on farming and estate management."—*Literary Critic*.

"The author appears to possess the combination of theory and practice in a very eminent and useful degree."—*Carlton Post*.

"All classes in the kingdom owe much to Mr. Macdonald for his very able and practical work."—*Banner*.

"Every thing affecting successful agriculture seems to be treated of in Mr. Macdonald's book. He draws a comparison between Scotland and England, and shows that the produce of Scotland is greater than that of England, in consequence of the Englishman's rigid adherence to expensive and antiquated notions."—*Galway Express*.

"A truly excellent work, that can hardly fail to command the attention of all who are connected with rural affairs."—*Pioneer*.

"Mr. Macdonald holds a good place among the literary advisers of farmers, and is a first-class intelligent farmer."—*Invergordon Times*.

"It is a good specimen of what books ought to be—*multum in parvo*. We strongly recommend it to all interested in agriculture as an excellent well-timed publication."—*Leader*.

"This is a most sensible book. Mr. Macdonald writes in a clear and pointed style on subjects that he has thoroughly studied."—*Ipswich Express*.

"A faithful picture of our agriculture, and written in an agreeable, practical, and independent style."—*Albion*.

"Herein consists the value of the book: it is eminently practical, and on such a subject 'a grain of practice,' to use the well-known saying, 'is worth a load of theory.' There is sufficient in the book to satisfy the most exacting. The subject of agriculture is of the greatest importance, and Mr. Macdonald handles it in a thoroughly instructive manner."—*Public Opinion*.

"Its pages give ample proof that the writer is thoroughly conversant with every detail of agriculture."—*Sentinel*.

"An important and valuable publication, which, for clearness of arrangement, conciseness, and practical knowledge, challenges comparison with any work now extant on similar subjects."—*Northern Whig*.

"The exquisite getting up of the work would entice even non-professionals to dip into it. Having done so, we can assure them they will find it thoroughly readable, and not by any means such 'dry' reading as its title would lead them to expect. The work is precisely what its title imports, and we strongly recommend a perusal of it to our agricultural readers."—*Wexford Constitution*.

"A practical and instructive work, which owners and occupiers of the land would do well to peruse."—*Journal*.

"This is a useful and practical work, comprising in a very narrow compass the suggestions and instructions scattered over many costly volumes, quite inaccessible to the general class of working farmers and agriculturists."—*Cork Daily Reporter*.

"Plain and practically written—we cordially recommend it, and wish it every success."—*Freeman's Journal*.

"We have no hesitation in saying that it is by far the best treatise on farming that has yet appeared."—*Patriot*.

"His remarks are entitled to the highest respect from our agricultural friends, who, we doubt not, will profit from a perusal of this able, interesting, and important volume."—*Yorkshire Gazette*.

"Although there are many excellent works on agriculture and farming, Mr. Macdonald's manifestly bears away the palm for occupying the widest field in the smallest space."—*British Press*.

"A valuable sketch of the present state of agriculture, written with dignity and vigour."—*Southern Whig*.

"Our author has evidently paid great attention to the important subjects of agriculture and estate improvements. The book is extremely valuable, and ought to be read by every person interested in agricultural pursuits—in fact, by every landowner and farmer in the United Kingdom."—*Northern Herald*.

"It is truly refreshing to meet with an author who has condensed so much practical knowledge into so small a space, and we think, indeed, there can be no better proof of the popularity of the book, than the fact that it has already reached a *ninth edition*."—*Comet*.

"Thoroughly practical, clearly written, and concise. We have, indeed, rarely met with a work more deserving of general support."—*North Mail*.

"This book, from the pen of an able and accomplished writer, abounds in valuable information, and claims the serious attention of the landed interest. That the work should have reached a *ninth edition* in so short a period, goes far in proof of its popularity and worth."—*Morning News*.

"The able author of the work is evidently a Scotchman with a shrewd head, and possessing great experience as a civil engineer and practical agriculturist. His 'Hints' betoken much strong common sense; they are expressed in a pointed, well arranged and clear style, and will amply reward perusal by the most advanced farmer."—*Fife Herald*.

"The work is clearly and concisely written, and the many hints which it contains cannot fail to prove of interest to the agricultural world. We may mention as a proof of its merits, that it has already reached a *ninth edition*."—*Oxford Journal*.

"The present treatise is wholly practical, and in a short space gives the writer's experience upon many different schemes of farm management. He expresses himself forcibly; and in most of his remarks we recognize the sagacity of an able business man."—*Carlisle Examiner*.

"The third edition of this volume has made its appearance. It is a book which has long been wanted by the farmer, and from the fact of every copy of the pre-

vious editions having been subscribed for by members of the Upper and Lower Houses of Parliament, it is unnecessary to say more as to the high reputation it has already obtained."—*Malton Gazette*.

"Many of the writer's facts are of startling significance, and, writing as a man of experience, his opinions are of great value. They are eminently and essentially valuable, and it will be well, not for a particular but for the whole community, if the hints were generally acted upon."—*Brighton Gazette*.

"This book is eminently valuable to landowners and farmers—thoroughly practical in its character, and abounding in good and useful hints. Nothing, indeed, that we have ever met with has been published equal to it."—*Weekly News*.

"It is a most able and useful little work, and one well calculated, from its concise and clear style, to impart a great amount of knowledge of the important subject of which it treats."—*Evening Post*.

"Mr. Macdonald's work is excellent and popular, and it appears to have gained its popularity by genuine merit. It is written in a forcible style, and we have seldom encountered a book that, in so small a compass, contains so great an amount or so rich a variety of valuable matter."—*Weekly Review*.

"The celebrated Dr. Johnson says that, 'he who raises a single blade of grass where it never grew before, is a benefactor to his country.' How great a benefactor must Mr. Macdonald be, when he shows us how to raise *many* blades! Our author has certainly produced a most interesting work of great excellence, which every landed proprietor and farmer would do well to peruse. We would take the liberty to suggest the omission in a new edition, of the allusion to the estates of Sir Richard Tufton as unnecessary, even though it be true that Sir Richard's estates are '*Sloughs of Despond*!' "—*Agricultural Gazette*.

"Mr. Macdonald very properly says that it is one thing to understand principles, and quite another thing to work them out; and that a man may be a good theoretical land steward, but a very bad practical one. With reference to farm leases, however, we differ from our author. We think that leases tend to make tenants lazy and uncontrollable. Nevertheless, Mr. Macdonald's eminent qualifications and lengthened experience entitle his opinions to profound respect. He has produced a very concise and extremely interesting book, written in so agreeable a style, that even those who are wholly unconnected with husbandry may read it throughout with much interest and real pleasure."—*Chronicle*;

"Our author is evidently a practical and intelligent agriculturist, who thoroughly understands the essential theories and practices of the art of cultivating the land. He speaks to us in the voice of instruction, of encouragement and admonition. The cultivators of the soil and the owners of the soil are under deep obligation to him for his truly able and valuable hints. His name, moreover, must go down to posterity honourably associated with the most distinguished names in the science of agriculture."—*Midland Express*.

"The author of this volume is well known as the writer of a valuable pamphlet entitled 'What the Farmers may do with the Land.' The reputation he has thereby acquired as a practical man will not be lessened by the attractive book before us, which was so eagerly sought for, that in the space of five weeks a new edition was rendered an absolute necessity. It possesses the rare merit of being brief and to the point, notwithstanding that the information contained in it is of an exceedingly comprehensive description. We commend it heartily to the attention of landowners and farmers generally."—*Cheltenham Journal*.

"We think the book should be in the hands of every landowner and farmer, because Mr. Macdonald not only tells the farmer what to do and how to do it, but he tells him the *reason* why, in a clear and convincing manner. We cannot too strongly recommend the work."—*Farmer's Circular*.



"This valuable work has been now republished, and a mere glance through its pages is sufficient to justify the estimate in which it has long been held. The general effect of the work is to stimulate the farmer-capitalist to cultivate his land, so as to make it yield, as nearly as possible, what it is capable of producing."—*Dublin Evening Mail*.

"Mr. Macdonald has had a large practical acquaintance with farm management and agricultural improvements; he is therefore entitled to speak with authority. The book will be found very useful, especially as to the most effectual and economical mode of carrying out landed improvements."—*Bunfshire Journal*

"This valuable little book is by a distinguished agriculturist. The early editions were rapidly bought up by the members of both Houses of Parliament, and now a ninth edition has been issued. Mr. Macdonald has treated his subject admirably, and we are glad to see that the work is free from the pedantry which too often characterises scientific men."—*Waterford Mail*.

"We feel no hesitation in saying that Mr. Macdonald's Hints on Farming and Estate Management are the best and most concise we have ever read. The work does him great credit, and that the early editions sold so rapidly proves, we think, the correctness of our opinion."—*Telegraph*.

"Every page bears the impress of having been written by an able and experienced man, and hence its matchless value. Every landed proprietor and farmer in England ought to peruse the work. We entirely concur with our author respecting the lease system; for, without a lease, no one is sure that his industry will turn to his own profit; indeed he cannot be expected to try costly experiments or lay out capital."—*Mercury*.

"The opinions of the author of this work ought to be received with respect, considering that he has for years been occupied in the study and practice of agriculture, estate management, land valuing, and surveying. He points out what he considers grave deficiencies in the English system, contrasting it most unfavourably with that pursued in Scotland. The author enters into details respecting our system of farming, pointing out its errors, and showing how much time, trouble and expense might be saved. The volume certainly ought to be in the hands of all those who are in any way interested in agricultural pursuits."—*The Press*.

"The author seems to have had considerable experience in farming matters, both at home and abroad, and his 'Practical Hints' embrace and include almost every subject on which it is requisite for the landowner and farmer to be well informed. The hints are practical, and we must say are carefully given, and calculated to be of great use to agriculturists."—*Herts Guardian*.

"This instructive volume is from the pen of a gentleman whose scientific attainments are varied and profound. With corn prices ranging so low it is exceedingly important to be told how to economize labour in its production. Not only do landowners and farmers owe much to Mr. Macdonald for his excellent work, but also, indeed, every man, woman, and child in our vast population. The book is remarkable for its size, and that it treats of almost every subject connected with farming and estate management."—*Agricultural Journal*.

"Mr. Macdonald treats in detail of hay-making, ploughing, agricultural vehicles, arrangement of farm steadings, enclosures, drainage, sewage, the bird question, the management of estates, farm leases, and a variety of other subjects. It is a capital book; written in a clear, plain, perspicuous style, and in that spirit of enthusiasm which irresistibly conveys conviction to the reader."—*Manchester Courier*.

"This is the *ninth* edition of a work which has done good service in stimulating the tenant farmer to improve his condition by obtaining a more abundant



increase from the land. There is a practical character about the hints and suggestions which cannot fail to make the book useful to the class for whose benefit it has been written."—*Observer*.

"We have no hesitation in heartily recommending the work to the attention of young and intelligent agriculturists, who are not prejudiced or bigoted in favour of old and questionable theories connected with farming. The 'Practical Hints' are clearly and forcibly written, and appear to be the production of an observant mind, well trained and occupied in the study and practice of agriculture."—*Derbyshire Advertiser*.

"The author of this admirable book is favourably known as a practical agriculturist, as well as a profound thinker in connection with the great question of farm management. He writes in a bold and dashing spirit, and brings facts to bear on his arguments with a degree of power rarely met with in works of this class. His observations on the lease system should be printed in letters of gold, and a copy of it hung up in the office of every estate owner in the United Kingdom."—*Banner of Ulster*.

"This work is a most valuable contribution to the literature of the farm. Possessing the scientific education requisite to appreciate the important principles regulating the cropping, draining, and manuring departments of the art of farming, as expounded by such men as Liebeg and Johnstone, and uniting to this that practical knowledge of the art which experience, and experience only, can give, its writer becomes an able exponent of the ideas which ought to be the groundwork of true farming. His mind and position are both of the very kind required to extend and mature the art. It is but seldom that we come on a book which so admirably accomplishes its purpose as this work does, and it deserves a wide circulation among farmers. The general management of agricultural estates is considered in an enlightened and discriminating manner."—*Borlase Advertiser*.

"This work, so much sought after in its first issue, has appeared with many useful additions. Many of the contents are ably treated, and the minor details in connection with the accommodation and feeding of the animals reared on the farm are not overlooked; whilst, at the same time, they are of the greatest importance to the agriculturist."—*Maidstone and Kentish Journal*.

"Verily one page of Mr. Macdonald's book contains as much as twenty pages of any work on similar subjects, whilst his style is at the same time free and easy. Certain agriculturists may perhaps feel inclined to displeasure on the moment of reading some of our author's observations; but we ought not to forget that they are our best friends who tell us of our faults. Indeed we think, taking the work as a whole, there can be no question that it has been penned not to find fault, but to stimulate."—*Farmer's Gazette*.

"The work is of inestimable value to every agriculturist."—*Waterford Express*.

"Mr. Macdonald gives some curious information relative to the time lost in ploughing a field where the ridges are short, and he urges very strongly the necessity of a well-considered and thorough system of drainage. Our author is entitled to speak with authority upon the important subject, since upwards of a million sterling has been expended on drainage and agricultural improvements under his immediate direction and superintendence."—*Banff Journal*.

"A decidedly practical book, full of admirable hints. Just what every farmer and landowner ought to peruse with attention."—*Raig Advertiser*.

"We are told of farm steadings, provisions for cattle, ploughing, haymaking, draining, size of fields, breeding of stock, labourers' accommodation, rotation of

cropping, the lease system, and a great variety of other topics. The author compares the Scotch with the English system of farming, in a clear and practical manner."—*Agricultural Record*.

"This able and concise volume reflects no little credit on the writer. It is, in fact, a model for others to imitate, and that it has in so short a time reached a *ninth edition* is proof, we think, that it is not the quantity but the quality that imparts worth."—*Belfast News*.

"This is a well-written and valuable book to farmers. The author is favourably known by a pamphlet published some time ago, 'What the Farmers may do with the Land.' Of his present production it may be sufficient to repeat the judgment of Alderman Mechi, who styles it 'a very truthful, interesting, and comprehensive view of agriculture and its requirements.'"—*Gloucestershire Chronicle*.

"Mr. Macdonald is evidently an agriculturist of great experience, and a thoroughly scientific man of great intellectual powers."—*Magnet*.

"These 'Hints' are written with much ability, and every page gives ample proof that the author is a practical man of no common order. The important hints on estate management are very excellent and valuable. Mr. Macdonald's aim has evidently been to make the book as 'practical' as possible, and in this respect the object has certainly been attained."—*Western News*.

"The admirable book is from the pen of a gentleman of the highest character and acknowledged talent, who is not unknown in literary circles. We have the utmost confidence in all his opinions and writings, feeling assured that if he did not feel quite equal to the task of handling the subjects of farming and estate management, he never would have attempted to write on either."—*Liverpool Times*.

"This sound, sensible, and thoroughly practical work cannot fail of being eminently useful to landlord and tenant, whose interests and well-being, indeed, are identical."—*Freeman's Journal*.

"Our author, it would appear, has had large and varied experience in directing the improvements and general management of landed property, so that he is qualified to express opinions and give hints."—*Oxonian*.

"Whilst there are not wanting works upon agriculture, both of a scientific and practical kind, the able 'Hints' before us should engage the serious attention of every landed proprietor and agriculturist. It must be obvious that nothing can be more important than the proper cultivation of the soil of our country. Mr. Macdonald points out in a clear manner how farms may yield a more abundant increase, and how landlords may improve their estates without putting their hands in their pockets, by 'granting leases' and other privileges."—*Middlesex Advertiser*.

"Plain and practically written; full of common sense and hard-hitting facts"—*Cambridgeshire Press*.

"Mr. Macdonald's 'Hints' ought to stimulate the English farmer to improvement, and the owners of land to more liberality to their tenantry. The book before us is the best we have as yet perused on rural subjects, and the fact of its having reached a *ninth edition* in a comparatively short period, proves it to be of standard excellence, which it certainly is."—*Mirror*.

"Mr. Macdonald's work on farming and estate management is unquestionably the most practical and useful of the kind we have ever seen. The excellent hints proffered are evidently based on long experience, and a thorough knowledge of rural affairs."—*Newcastle Times*.

"There is strong testimony to the value of this work in the fact that the early editions were speedily bought up by the highest classes in the Kingdom. It is evidence that the author is not unknown to fame in the department of agriculture. The volume contains a large amount of useful matter on the essentials of successful farming, and we recommend it to all those engaged in that employment, with every variety of which it deals in a masterly manner."—*Armagh Guardian*.

"In a moderate compass the author reviews, in a suggestive and practical manner, the prospects of agriculture in the new era which has opened upon it, criticising various points of the present systems as practised in Scotland and England, and dwelling on the necessity of bringing all the resources of theory and practice to bear on the cultivation of the soil, so as to increase productiveness as much as possible. The subjects touched on include all those that prominently engage the agriculturist's attention: deep ploughing, improved farm steadings and vehicles, provision for cattle, rotation of cropping, uprooting of hedges, drainage, improvement of waste lands, manures (with some special remarks on the value of what is now so recklessly wasted, town sewage,) competitive shows, accommodation for labourers, the ruthless murder of small birds, the beneficial operation of leases, &c. A most useful book for the farmer and landowner."—*Bristol Daily Post*.

"This elegant little volume, in good print, and handsomely bound in cloth, is written by a gentleman of high literary attainments and great scientific research. Every page, indeed, gives valuable information, and a copy of the book ought to be in the hand of every farmer and landed proprietor."—*Southern Times*.

"The remarks on drainage, and the benefits derived from it when effectually done, the sewage of our cities, breeding of stock, accommodation for labourers, are thoroughly practical, and deserving of serious attention, and the suggestions regarding leases are especially worthy of consideration."—*Bell's Messenger*.

"Mr. Macdonald is known as an authority on the subject of which he treats. A native of Scotland, he has been familiar, from his early years, with the state of agriculture in that country; his subsequent extensive employment on both sides of the Tweed, as a civil engineer and estate agent, has afforded him ample means of knowledge and experience; and his writings have shown how well he has profited by his opportunities. We therefore recommend this work to the attention of our agricultural readers."—*Devizes and Wiltshire Gazette*.

"There is more unassuming, sound knowledge in this treatise than in many elaborate works, and great success has deservedly attended the author's endeavour to improve at once the condition of the tenant-farmer and of the land he cultivates. Mr. Macdonald knows what he writes about, and his sense and style are both good."—*John Bull*.

"A very interesting work. The name of the author guarantees that the work is eminently practical and scientific, and we have no doubt it will have a large circulation. Mr. Macdonald is a highly practical man, not only a Civil Engineer, but a practical Farmer and Land Agent. We would recommend every person interested in agriculture to peruse this most valuable work."—*Kentish Chronicle*.

"We unreservedly recommend this book to our agricultural friends. It is a most sensible practical treatise on the most important of our national industries, written in a scholarly manner, and yet so plainly that one might hold the plough or dig the drain, and read and understand it."—*Perthshire Advertiser*.

"The author's opinions deserve the attention of those who are engaged in the cultivation and management of land. In one or two of his opinions we cannot concur, but, generally, his advice must commend itself to the acceptance of the reader by its practical wisdom, and as it is obviously the result of experience and mature consideration."—*Londonderry Guardian*.

"This is a ninth edition of a very useful treatise on agriculture by a writer thoroughly competent to discuss that subject. There is, we are aware, a strong, and not altogether an unjustifiable, prejudice in the minds of many practical farmers against the whole class of writers of books on their special work. Far from unjustifiable, we say, inasmuch as the name of the literary theorists on agriculture, and its various branches, who have no or small familiarity with farming in its practical details, is unhappily legion; and many have suffered from lending too credulous an ear to their advices and lofty theorizings. But Mr. Macdonald can justly claim exemption from this category. He is no novice in the art on which he writes, no blind impractical theorist, who preaches what he has had no opportunity of ever practising. The hints he has given and the advice he has offered are the shrewd, well-weighed observations of one who has gained by experience a thorough knowledge of his subject."—*Ayr Observer*.

"This is a book published by a gentleman connected with the north of Scotland (a son of the late Rev. Dr. Macdonald of Ferrintosh), which has had a very large sale. Every page shows the writer to be a man of experience. Our author points out the defects of English farming, and holds up the Scotch system as an example to agriculturists south of the Tweed, in almost everything but hay-making, in which he says, with great truth, that the English excel the Scotch."—*Elgin Courier*.

"We have now adverted to the principal points in this book, and although its author may perhaps be open to the charge of speaking rather dogmatically at times, yet his work seems to us to contain a very great number of very valuable suggestions, and we recommend it cordially to the owners, managers, and occupiers of land."—*Londonderry Guardian*.

"This is the *ninth edition* of a work which called forth a great deal of comment when first issued, and which may be described as, in a great measure, a comparison of English with Scotch farming. Mr. Macdonald (a son of the late Rev. Dr. Macdonald, of Ferrintosh,) has had experience of both systems, and, while he admits that, on the whole, the science of farming is better understood by the whole body of agriculturists on this side of the Tweed, he says that in some departments we are excelled by the English. His views on general estate management are very deserving of attention."—*Inverness Courier*.

"Mr. Macdonald's skill in husbandry—his occupation as a Civil and Agricultural Engineer, Drainage Surveyor, and Land Agent—his education, experience, and extensive general knowledge—give, we think, immense weight and importance to his 'Hints on Farming and Estate Management,' as well as to his opinions generally on such subjects."—*Times*.

"This is a work of great practical value. Our talented countryman (a son of the late Rev. Dr. Macdonald, of Ferrintosh) contributes much that is truly valuable, in a popular form. He makes telling use of his facts and figures, and clenches his arguments by ascertained data in an admirable manner. On the great questions of drainage, ploughing, rotation of cropping, enclosures, improvement of waste land, breeding of stock, sewage and leases, Mr. Macdonald writes in an excellent, intelligent, and practical manner."—*Northern Ensign*.

"The writer strikingly contrasts the commercial enterprise of this country with its agricultural inactivity. He admits great improvement in farming, but wants more. The economy in all ways to be practised by the farmer is largely discussed, and there are excellent rules and advice as to draining. Altogether, a more clear, practical, hearty, and intelligent treatise than this volume of Mr. Macdonald it is not our fortune to know, and we strongly recommend it to the attention of the agricultural mind."—*Era*.

"This valuable manual has now been republished, and a mere glance through its pages is sufficient to justify the estimate in which it has long been held. The



general effect of the work is to stimulate the farmer-capitalist to cultivate his land, so as to make it yield, as nearly as possible, what it is capable of producing.”—*Dublin Evening Mail*.

“It is a most able, valuable, and interesting book, of high literary merit, affording a marvellous deal of practical information on farming and estate management within small limits. The lease system is strongly advocated, and striking illustrations are given of the certain increase of rental under it.”—*Economist*.

“Mr. Macdonald has marshalled a vast array of facts and suggestions of the utmost importance to the agriculturists and landed proprietors of this country. If Mr. Caird had required further arguments in support of his recent motion in the House of Commons for the official collection of agricultural statistics, he might have consulted this work with profit. On the subject of estate management, Mr. Macdonald strongly urges the granting of leases as the first and most important of all incentives to the cultivator, and the most beneficial method in its results to the landlord. We strongly recommend this part of his book to the consideration of landed proprietors. Indeed we have seldom seen the chief points of the entire land question brought with so much force within so small a compass.”—*London Review*.

“A thoroughly practical book, highly interesting, and of great value to land-owners and agriculturists.”—*Lord Palmerston*.

---



FOURTH EDITION.

## WHAT THE FARMERS MAY DO WITH THE LAND ;

OR,

PRACTICAL HINTS FOR THEIR AND ITS IMPROVEMENT.

BY

D. G. F. MACDONALD, C.E., LONDON.

"A sounder, better argued, or more thoroughly sensible practical pamphlet is not often met with. Mr. Macdonald belongs to the go-ahead class of agriculturists, and sees nothing in store for the farmer but prosperity, if he only goes the right way to extract it from the land. The superior economy and efficiency of the Scottish system of agriculture are practically demonstrated from a variety of details, stated with great clearness and much method of arrangement. Altogether the pamphlet is one calculated to do good and set the farmers thinking, and we hope that its rural circulation may prove equal to its merits."—*Atlas*.

"A pamphlet abounding with information, such as cannot fail to recommend itself."—*Times*.

"This is an excellent, practical, and well-timed pamphlet, stimulating the English agriculturists to improvements. Mr. Macdonald writes like a man in earnest, and one who is practically acquainted with the subject, and we hope that his pamphlet will be well circulated among the *far niente* bucolic interest."—*Morning Chronicle*.

"Mr. Macdonald appeals to the English farmers to apply the most improved Scottish system of cultivation to their lands; reminds them that the barren north produces on an average (thanks to enterprise and skill) more than a third more corn per acre than the genial south; and reads our sluggishly-moving English friends a sound lecture on their tendencies to retrograde rather than to go ahead; filling his pamphlet with hard-hitting facts and excellent and sensible practical details."—*Inverness Courier*.

"Of all the pamphlets which have recently been published on agricultural improvement, none of them contain more practical information in such small compass."—*Northern Ensign*.

"It is a most sensible pamphlet; we would cordially recommend it."—*Examiner*.

"If one of the greatest elements of success consists in speaking to the times and speaking in language not to be mistaken, then we say this pamphlet must obtain a wide circulation, and be the means of doing a vast amount of good."—*Observer*.

"Its pages convey a vivid and correct picture of the present state of agriculture. The 'Hints' are most valuable."—*Guardian*.

"We recommend this pamphlet to our agricultural friends. It is the work of a practical man, not a mere theorist."—*Gloucester Journal*.

"This work is clearly and concisely written, and is certainly by a master in farming. It should be perused, not only by the landed proprietors and farmers of England, but by everyone who is in any way connected with the occupancy and cultivation of the soil."—*The Weekly Despatch*.

"A very able pamphlet."—*The Right Hon. Sir E. Bulwer Lytton, Bart., M.P.*

SEVENTH EDITION.

---

One Vol. 8vo., with a comprehensive Map.

BRITISH COLUMBIA AND VANCOUVER'S  
ISLAND.

BY

D. G. F. MACDONALD, C.E.,

F.G.S., M.R.S.L., F.R.G.S., F.A.S.L., J.P., &c.

(Late of the Government Survey Staff of British Columbia, and of the International Boundary Line of North America), Author of "What the Farmers may do with the Land," "The Paris Exhibition," "Decimal Coinage," &c.

---

"This work deserves attention. It possesses interesting information, clear arrangement, and occasional warmth of description."—*Invergordon Times*.

"This is in every respect a most important work, and deserves the serious consideration of the Government and the country."—*Observer*.

"A very able, praiseworthy, and interesting work—boldly written—tingling of truth throughout—and one that will doubtless be read with much avidity."—*Independent*.

"Mr. Macdonald writes down the land as one almost accursed by nature."—*Athenæum*.

"In short, there is information for all who desire to know anything about the colony, but more especially for those who contemplate emigrating to that district."—*Liverpool Mercury*.

"A most startling book, after the glowing articles which have issued from the Press."—*Guardian*.

"We have no reason to believe Mr. Macdonald other than an unprejudiced reporter of what he heard and saw in the much-vaunted Colony."—*Critic*.

"An important and remarkable publication, which warns our countrymen from rushing hoodwinked on their ruin."—*Mirror*.

"Whoever may be disposed to go on a venture to British Columbia can never say that they were misled by Mr. Macdonald."—*Bell's Weekly Messenger*.

"This handsome volume cannot fail to interest all who have friends in the colony. . . . The general account is dreary enough, except for those who are burning with the *aura sacra fames*."—*Era*.

"This is an excellent literary production, affording much valuable information. In the face of Mr. Macdonald's statements, it is surely a doubtful benevolence that ships off poor governesses and seamstresses to this distant colony."—*Albion*.

"Of Vancouver's Island the author speaks in more favourable terms, and with California he is in raptures. . . . cannot do better than consult Mr. Macdonald's book."—*Weekly Despatch*.

"The statements with which this book abounds are extremely important, inasmuch as they present the strongest possible contrast to the popular belief on the subject in this country. His appreciation of natural scenery is keen, and his descriptions are vigorous and life-like."—*London Review*.

Mr. Macdonald's practical knowledge of agriculture—his education, profession, and experience—give a weight and importance to his opinions in respect to the productiveness or sterility of a country which members of other professions cannot expect to command."—*Spectator*.

"This handsome volume will take its place as the best book published on the subject. It abounds with information on every topic in connection with the country, and deserves the attention of everyone."—*Kentish Chronicle*.

"This handsome volume, from the pen of a talented and distinguished countryman, awakens interest alike from the importance of the subject and the thorough fidelity with which it is treated. We unhesitatingly aver that no volume on a kindred subject has ever issued from the press presenting a better *primâ facie* claim to implicit reliance. Mr. Macdonald obviously aims at a truthful and unvarnished statement of facts."—*Northern Ensign*.

"Mr. Macdonald furnishes a great deal of interesting information regarding the Indian tribes of British Columbia, the natural history and botany of the country, and has made up altogether a goodly volume of facts, hints, and theories."—*Inverness Courier*.

"This work demands the serious attention of everyone intending to emigrate to British Columbia or Vancouver's Island—of everyone who would desire information respecting those regions. . . . We are, moreover, disposed to believe Mr. Macdonald writes in perfect good faith, and has no inducement to advance statements unwarranted by facts or opinions not well grounded. We regard the work as a most valuable one."—*The Field*.

"The geology, botany, and natural history of British Columbia are interestingly discussed, to which are added numerous sketches of the aboriginal inhabitants, with their habits of life and religious observances. We specially recommend the volume."—*Edinburgh Witness*.

"The fact of this work having reached a seventh edition in a comparatively short period, indicates its claim to be considered of standard excellence, which it undoubtedly is."—*Morning Advertiser*.

"His book is practical, sensible, and well-informed on local matters."—*Examiner*.

"This book contains ample details concerning the geography, natural history, and productions of British Columbia—and to the author undoubtedly belongs the merit of having written a large and interesting work upon a very important subject."—*Star*.

"His description of the festive entertainments of the Red Indians is highly amusing, and his hints to emigrants are most valuable. We cordially recommend the volume as the work of an accomplished scholar, and an honest, truth-telling man."—*Morning Herald*.

"Mr. Macdonald paints the country as a great barren, ice-bound, hungry waste. No doubt British Columbia is very severe in the winter season. Cox's 'Columbia River,' Washington Irving's 'Astoria,' and various other books, go to prove this."—THE ENGLISHMAN—*Atlas*.

"The work commands respect, for it is ably written and reliable."—*Manchester Courier*.

"This instructive volume has been most opportunely published by a gentleman worthy of all trust, and whose scientific attainments are varied and profound."—*Standard*.

"Undoubtedly the best work on the subject—full of interest, pith, and power."—*Leader*.

"So thorough a handling of the subject is a most valuable contribution to our colonial literature."—*Express*.

"We earnestly recommend the book, which is full of interest, and replete with information."—*Illustrated London News*.

"We heartily welcome this volume, as hitherto all accounts have been *couleur de rose*."—*Dial*.

"This is positively a remarkable, able, and truthful work, which should put writers of fiction to the blush. It verifies the old saying—*magna est veritas et prævalebit*."—*Pioneer*.

"The most wretched and miserable country under the sun. What we heard of it in England was a gross fabrication of infamous lies concocted by interested persons."—*Star*, Nov. 4, 1862.

"I have now read your book from end to end, and I can state very frankly, from my personal knowledge of British Columbia, as well as from deductions formed from accounts communicated to me by many persons who have traversed the country since 1858, that I give full confirmation to all you have said respecting the climate, soil, and physical aspect of the colony."—A RESIDENT FOR NEARLY TEN YEARS.—*Vide Standard*, Nov. 6th, 1862.

"We cordially commend this volume as a most striking, comprehensive, and powerful work, of incalculable value to intending emigrants."—*Sentinel*.

"But the illusion of a Utopia is roughly destroyed by Mr. Macdonald, who has written with a bold and vigorous pen and in an agreeable style."—*Parthenon and Literary Gazette*.

"Lord Bacon said truly, there are three things which make a nation great and prosperous: a fertile soil, busy workshops, and easy conveyance for man and commodities from one place to another; but these essentials are, according to our author, altogether wanting in British Columbia."—*Banner*.

"This is a very able and useful work, scholarly and trustworthy, setting forth the truth in a bold and fascinating style, blending information and entertainment agreeably and successfully. The work is altogether most attractive."—*Warder*.

"The author of this disenchantment tells us that British Columbia is a miserable country—that it wants fine land, prairie, and climate."—*Post*.

"These are true statements, and no blame can be strong enough to be applied to those who have ignorantly, carelessly, or wilfully misled, or have furbished up old woodcuts, and dished up glowing paragraphs, to lead many families into misery, famine and death."—*Family Herald*.



## BRITISH COLUMBIA AND VANCOUVER'S ISLAND.

---

TO THE EDITOR OF THE TIMES.

Sir,—At a time when the whole country is perplexed by the contradictory statements which have appeared in books, pamphlets, and newspapers, relative to British Columbia and Vancouver's Island, you will not, I hope, hesitate to publish the following correspondence in the *Times*.

Your readers will no doubt peruse Mr. Langford's letter with deep interest, and attach importance to the opinions of a gentleman who has been engaged in extensive farming operations in Vancouver's Island for upwards of nine years, and who had been for many years, and until his departure from the colony in 1861, Chairman of the Bench of Magistrates.—I am, Sir, yours obediently,

18, Parliament Street, Nov. 4.

D. G. F. MACDONALD.

---

London, Oct. 23, 1862.

Dear Sir,—Seeing that you have returned to England, and that conflicting accounts are disseminated day after day in this country respecting the climate, pastoral and agricultural capabilities of British Columbia and Vancouver's Island, and that my writings relative to these dependencies have been impugned, I am induced to solicit the favour of your kindly giving me your written opinion as to whether the book in question (published by Messrs. Longman & Co., a copy of which I send to you) contains truth or exaggerated statements.

It can hardly be doubted that the sentiments of a gentleman so eminently qualified as you are to give an opinion on a subject of such moment to the emigrating population of this country, will be received by the country with favour and thankfulness.

I am, dear Sir, yours faithfully,

D. G. F. MACDONALD, C.E.,

Late of the Government Survey Staff of British Columbia.

E. E. Langford, Esq., J.P., &c.

---

London, Nov. 4, 1862.

Dear Sir,—I feel that I cannot well refuse to answer your letter of the 23rd ult., to which I would have replied earlier had I not wished, before doing so, to have perused your work on British Columbia and Vancouver's Island with care and attention.

I have now read your book from end to end, and I can state very frankly, from my personal knowledge of British Columbia, as well as from deductions formed from accounts communicated to me by many persons who have traversed the country since 1858, that I give full confirmation to all you have said respecting the climate, soil, and physical aspect of the colony.

As true as there is an extensive auriferous tract in British Columbia, equally true is it that the territory can never become either agriculturally or pastorally a rich and great province.

It is nothing short of reckless assertion to say that "prairies" exist in these dependencies, from which winter provender might be easily procured. It is a matter of notoriety on the Pacific coast that the very pack-trains to the Columbian mines have to carry Californian barley at an enormous cost, to keep skin and bone of horse and mule together.



You are correct in stating that British Columbia wants fine land, prairie, and genial climate, and that the country is neither adapted for cattle nor suited to cereals. This is, indeed, the only conclusion that an experienced agriculturist could possibly arrive at.

You have very justly drawn a more favourable picture of Vancouver's Island, which possesses natural advantages not common to the sister colony. In climate and soil—particularly the former—Vancouver's Island is much superior. But its agricultural and pastoral capabilities have also been very greatly exaggerated by interested newspaper correspondents and other writers. There is, indeed, every reason to fear that many of the emigrants of this country, who have been misled by flattering accounts, and who have arrived on those distant shores with slender means at this inclement season, will be exposed to severe privation, and possibly to actual want.

I would venture to draw your attention to what I presume is a typographical error in your book, where you allude to the climate of Vancouver's Island. It should be  $27^{\circ}$  below freezing point, not zero. This is the only error which I have observed in its many pages. I am quite aware, however, that the cold is very much more severe in British Columbia.

You are welcome to make any use you please of this communication. It may probably assist in dispelling the many erroneous impressions which prevail in England as to the nature of the country, climate, and resources of these colonies, and in supporting what you have so clearly and forcibly expressed in your most valuable work.

I am, dear Sir, faithfully yours,

EDWARD E. LANGFORD,

A Resident for nearly Ten Years.

D. G. F. Macdonald, Esq., C.E., &c.

---

LONDON : LONGMAN, GREEN, & Co., PATERNOSTER ROW.

2/-

2/-





UNIVERSITY OF ILLINOIS-URBANA



3 0112 082037091

